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Course Name/Number: _____ Introduction to Psychology (157)_____

Professor: __Brian Burke_____

Article Title/Author as listed in course syllabus or as referred to in class: _____
Psychopathology/Hock_____

_____

CITATION FOR SOURCE OF MATERIAL:

BOOK	PERIODICAL
Author _Roger R. Hock_____	Author _____
Title _____	Article Title _____
Forty Studies that Changed Psychology (4th edition)	_____
_____	Periodical Title _____
Publisher _Prentice Hall_____	_____
Date of Publication ___2002_____	Volume/Issue _____
Pages __221-251_____	Date _____
	Pages _____

8 PSYCHOPATHOLOGY

Unless they have studied it, most people have the impression that psychology is primarily concerned with psychopathology and mental illness (the psychology subfield that studies mental illness is called *abnormal psychology*). However, as you may have noticed, nearly all of the research discussed so far in this book has focused on *normal* behavior. Overall, psychologists are more interested in normal behavior than in abnormal behavior because the vast majority of human behavior is normal. Consequently, we would not know very much about human nature if we only studied the small percentage of it that is abnormal. Nevertheless, mental illness is to many people one of the most fascinating areas of study in all of psychology. A wide variety of studies with crucial historical importance are included here.

First is a study that has kept the mental health profession talking for over 20 years. In this study, people posing as mental patients entered psychiatric hospitals to see if the doctors and staff could distinguish them from those who were actually mentally ill. Second, no book about the history of psychological research would be complete without reference to Sigmund Freud. Therefore, a discussion of his theory of the *ego defense mechanisms,* through the writings of his daughter, Anna Freud, is included since it relates to his work with psychological disorders. The third study is an experiment with dogs that demonstrated a phenomenon called *learned helplessness.* This relates to personality in that it led to a widely held theory explaining depression in humans. And finally, an intriguing and well-known experiment is presented involving overcrowded rats and their resulting deviant behavior, which may have important implications for humans.

WHO'S CRAZY HERE, ANYWAY?

Rosenhan, D. L. (1973). On being sane in insane places. *Science, 179,* 250–258.

The question of how to discriminate between normal and abnormal behavior is fundamental in psychology. The definition of abnormality plays a key role in determining whether or not someone is diagnosed as mentally ill, and the diagnosis largely determines the treatment received by a patient.

The line that divides normal from abnormal is not at all clear. Rather, all behavior can be seen to lie on a continuum with normal, or what might be called *effective psychological functioning,* at one end and abnormal, indicating mental illness, at the other:

It is up to mental health professionals to determine where on this continuum a particular person's general behavior lies. To make this determination, clinical psychologists, psychiatrists, and other psychotherapists may use one or more of the following criteria.

- *Bizarreness of the Behavior.* This is a subjective judgment, but you know that some behaviors are clearly bizarre in a given situation. For example, there is nothing bizarre about standing outside watering your lawn, unless you are doing it during a pouring rainstorm! So, a judgment about bizarreness must carefully consider the context in which a behavior or behavior pattern occurs.
- *Persistence of Behavior.* We all have our "crazy" moments. It is possible for a person to exhibit abnormal behavior on occasion without necessarily demonstrating the presence of mental illness. For instance, you might have just received some great news and, as you are walking along a busy downtown sidewalk, you dance for half a block or so. This behavior, while abnormal, would not indicate mental illness unless you began to dance down that sidewalk on, say, a weekly or daily basis. Therefore, this criterion for mental illness requires that a bizarre, antisocial, or disruptive behavior pattern persist over time.
- *Social Deviance.* When a person's behavior radically violates expectations and norms, it may meet the criteria for social deviance. When deviant behavior is extreme and persistent, such as auditory or visual hallucinations, it is evidence of mental illness.
- *Subjective Distress.* Frequently, as intelligent beings, we are aware of our own psychological difficulties and the suffering they are causing us. When a person is so afraid of enclosed spaces that he or she cannot ride in an elevator, or when someone finds it impossible to form meaningful relationships with others, they do not need a professional to tell them they are in psychological pain. This subjective distress is often a great help to mental health professionals in making a psychological diagnosis.
- *Psychological Handicap.* When a person finds it impossible to be satisfied with life due to psychological problems, this is considered to be a psychological handicap. A person who fears success, for example, and therefore sabotages in some way each new endeavor in life, is suffering from a psychological handicap.

- *Effect on Functioning.* This could be considered the bottom line in psychological diagnosis: the extent to which the behaviors in question interfere with a person's ability to live the life that he or she desires and that society will accept. A behavior could be bizarre and persistent, but if it does not impair your ability to function in life, true pathology may not be indicated. For example, suppose you have an uncontrollable need to stand on your bed and sing the national anthem every night before going to sleep. This is certainly bizarre and persistent, but unless you are waking up the neighbors or disturbing other household members, your behavior may have little effect on your general functioning and, therefore, may not be a clinical problem.

These symptoms and characteristics of mental illness all involve *judgments* on the part of psychologists, psychiatrists, and other mental health professionals. Therefore, the foregoing guidelines notwithstanding, two questions remain: Are mental health professionals truly able to distinguish between the mentally ill and the mentally healthy? And what are the consequences of mistakes? These are the questions addressed by David Rosenhan in his provocative study of mental hospitals.

THEORETICAL PROPOSITIONS

Rosenhan questioned whether the characteristics that lead to psychological diagnoses reside in the patients themselves or in the situations and contexts in which the observers (those who do the diagnosing) find the patients. He reasoned that if the established criteria and the training mental health professionals have received for diagnosing mental illness are adequate, then those professionals should be able to distinguish between the insane and the sane. (Technically, the words *sane* and *insane* are legal terms and are not usually used in psychological contexts. They are used here because Rosenhan incorporated them into his research.) Rosenhan proposed that one way to test mental health professionals' ability to correctly categorize would be to have normal people seek admittance to psychiatric facilities to see if they would be discovered to be, in reality, psychologically healthy. If these "pseudopatients" behaved in the hospital as they would on the outside, and if they were not discovered to be normal, this would be evidence that diagnoses of the mentally ill are tied more to the situation than to the patient.

METHOD

Rosenhan recruited eight subjects (including himself) to serve as pseudopatients. The eight participants (three women and five men) consisted of one graduate student, three psychologists, one pediatrician, one psychiatrist, one painter, and one homemaker. The subjects' mission was to present themselves for admission to 12 psychological hospitals, in five states on both the east and west coasts of the United States.

All of the pseudopatients followed the same instructions. They called the hospital and made an appointment. Upon arrival at the hospital they

complained of hearing voices that said "empty," "hollow," and "thud." Other than this single symptom, all subjects acted completely normal and gave totally truthful information to the interviewer (except that they changed their names and occupations). All the subjects were admitted to the various hospitals, and all but one was admitted with a diagnosis of *schizophrenia.*

Once inside the hospital, the pseudopatients displayed no symptoms whatsoever and behaved normally. The subjects had no idea of when they would be allowed to leave the hospital. It was up to them to gain their release by convincing the hospital staff that they were healthy enough to be discharged. All of the subjects took notes of their experiences. At first they tried to conceal this activity, but soon it was clear to all that this secrecy was unnecessary, since *note-taking behavior* was seen as just another symptom of their illness. They all desired to be released as soon as possible, so they behaved as model patients, cooperating with the staff and accepting all medications (which were not swallowed, but flushed down the toilet).

RESULTS

The length of hospital stay for the pseudopatients ranged from 7 days to 52 days, with an average stay of 19 days. The key finding in this study was that not one of the pseudopatients was detected by anyone on the hospital staff. When they were released, their mental health status was recorded in their files as *schizophrenia in remission.* There were other interesting findings and observations.

While the hospital's staff of doctors, nurses, and attendants failed to detect the subjects, the other patients could not be so easily fooled. In three of the pseudopatients' hospitalizations, 35 out of 118 real patients voiced suspicions that the subjects were not actually mentally ill. They would make comments such as, "You're not crazy! You're a journalist or a reporter. You're checking up on the hospital!"

Contacts between the patients (whether subjects or not) and the staff were minimal and often bizarre. One of the tests made by the pseudopatients in the study was to approach various staff members and attempt to make verbal contact by asking common, normal questions (e.g., When will I be allowed grounds privileges? or When am I likely to be discharged?). Table 1 summarizes the responses they received.

TABLE 1 Responses by Doctors and Staff to Questions Posed by Pseudopatients

RESPONSE	PSYCHIATRISTS	NURSES AND ATTENDANTS
Moves on, head averted	71%	88%
Makes eye contact	23	10
Pauses and chats	2	2
Stops and talks	4	0.5

(from p. 255)

When there was a response, it frequently took the following form:

PSEUDOPATIENT: "Pardon me, Dr. _____. Could you tell me when I am eligible for grounds privileges?"

PSYCHIATRIST: "Good morning, Dave. How are you today?"

The doctor would then move on without waiting for a response.

In contrast to the severe lack of personal contact in the hospitals studied, there was no shortage of medication. The eight pseudopatients in this study were given a total of 2,100 pills that, as mentioned, were not swallowed. The subjects noted that many of the real patients also secretly disposed of their pills down the toilet.

Another anecdote from one of the pseudopatients tells of a nurse who unbuttoned her uniform to adjust her bra in front of a dayroom full of male patients. It was not her intention to be provocative, according to the subject's report, but she simply did not consider the patients to be real people.

DISCUSSION

Rosenhan's study demonstrated that normal people cannot be distinguished from the mentally ill in a hospital setting. According to Rosenhan, this is because of the overwhelming influence of the psychiatric-hospital setting on the staff's judgment of the individual's behavior. Once patients are admitted to such a facility, there is a strong tendency for them to be viewed in ways that remove all individuality. The attitude created is: "If they are here, they must be crazy." More important is what Rosenhan refers to as the *stickiness of the diagnostic label.* That is, when a patient is labeled as *schizophrenic,* it becomes his or her central characteristic or personality trait. (See the discussion of Asch's 1946 study, "Forming Impressions of Personality," in Chapter 4.) From the moment the label is given and the staff knows it, they perceive all of the patient's behavior as stemming from that label; thus, the lack of concern or suspicion over the pseudopatients' note taking, which became just another behavioral manifestation of the psychological label.

The hospital staff tended to ignore the situational pressures on patients and saw only the behavior relevant to the pathological traits assigned to the patients. This was demonstrated by the following observation of one of the subjects:

> One psychiatrist pointed to a group of patients who were sitting outside the cafeteria entrance half an hour before lunchtime. To a group of young resident psychiatrists he indicated that such behavior was characteristic of the "oral-acquisitive" nature of the syndrome. It seemed not to occur to him that there were simply very few things to do in a psychiatric hospital besides eating. (p. 253)

Beyond this, the sticky diagnostic label even colored how a pseudopatient's history would be interpreted. Remember that all the subjects gave honest accounts of their pasts and families. Here is an example from Rosenhan's research of a pseudopatient's stated history, followed by its interpretation by

the staff doctor in a report after the subject was discharged. The subject's true account was as follows:

> The pseudopatient had a close relationship with his mother, but was rather remote with his father during his early childhood. During adolescence and beyond, however, his father became a very close friend while his relationship with his mother cooled. His present relationship with his wife was characteristically close and warm. Apart from occasional angry exchanges, friction was minimal. The children had rarely been spanked. (p. 253)

The director's interpretation of this rather normal and innocuous history was as follows:

> This white 39-year-old male . . . manifests a long history of considerable ambivalence in close relationships which begins in early childhood. A warm relationship with his mother cools during his adolescence. A distant relationship with his father is described as becoming very intense. Affective stability is absent. His attempts to control emotionality with his wife and children are punctuated by angry outbursts and, in the case of the children, spankings. And while he says he has several good friends, one senses considerable ambivalence embedded in those relationships also. (p. 253)

There was no indication that any of the staff's distortions were done intentionally. They believed in the diagnosis (in this case, schizophrenia) and interpreted a patient's history and behavior in ways that were consistent with that diagnosis.

SIGNIFICANCE OF FINDINGS

Rosenhan's study shook the mental health profession. The results pointed out two crucial factors. First, it appeared that the *sane* could not be distinguished from the "insane" in mental hospital settings. As Rosenhan himself stated in his article, "The hospital itself imposes a special environment in which the meaning of behavior can be easily misunderstood. The consequences to patients hospitalized in such an environment . . . seem undoubtedly countertherapeutic" (p. 257). Second, Rosenhan demonstrated the danger of diagnostic labels. Once a person is labeled as having a certain psychological *condition* (such as schizophrenia, manic-depressive illness, etc.), that label eclipses any and all of his or her other characteristics. All behavior and personality characteristics are seen as stemming from the labeled disorder. The worst part of this sort of treatment is that it can become self-confirming. That is, if a person is treated in a certain way consistently over time, he or she may begin to behave that way.

Out of Rosenhan's work grew greater care in diagnostic procedures and increased awareness of the dangers of applying labels to patients. Additionally, the problems addressed by his study began to decline with the decrease in patients confined to mental hospitals. This decrease in hospital populations was brought about by the discovery and widespread use of antipsychotic medications, which have the power to reduce symptoms in most patients enough for them to live outside a hospital and in many cases lead relatively normal lives. Concurrent to this was the growth of community mental health

facilities, crisis intervention centers, and behavior therapies that focus on specific problems and behaviors and tend to avoid labels altogether.

This does not imply by any means that the mental health profession has eliminated labels. However, largely because of Rosenhan's research and other research in the same vein, psychiatric labels are now used carefully and treated with the respect their power demands.

QUESTIONS AND CRITICISMS

There was one research and teaching hospital whose staff had heard about Rosenhan's findings before they were published and doubted that such mistakes in diagnosis could be made in their hospital. To test this, Rosenhan informed the hospital staff that during the next three months one or more pseudopatients would try to be admitted to their psychiatric unit. Each staff member was asked to rate each presenting patient on a 10-point scale as to the likelihood that he or she was a pseudopatient. At the end of three months, 193 patients had been admitted. Of those, 41 were considered with high confidence to be pseudopatients by at least one staff member. Twenty-three were suspected by at least one psychiatrist, and 19 were identified as pseudopatients by one psychiatrist and one other staff member. Rosenhan (the tricky devil) had not sent any pseudopatients to the hospital during the three-month period! "The experiment is instructive," states Rosenhan. "It indicates that the tendency to designate sane people as insane can be reversed when the stakes (in this case prestige and diagnostic ability) are high. But one thing is certain: Any diagnostic process that lends itself so readily to massive errors of this sort cannot be a very reliable one" (p. 252).

Rosenhan replicated this study several times in 12 hospitals between 1973 and 1975. Each time he found similar results (see Greenberg, 1981, and Rosenhan, 1975). However, other researchers dispute the conclusions Rosenhan drew from this research. Spitzer (1976) has argued that while the methods used by Rosenhan appeared to invalidate psychological diagnostic systems, in reality they did not. For example, it should not be difficult for pseudopatients to lie their way into a mental hospital, since many such admissions are based on verbal reports (and who would ever suspect someone of using trickery to get into such a place?). The reasoning here is that you could walk into a medical emergency room complaining of severe intestinal pain and you might get yourself admitted to the hospital with a diagnosis of gastritis, appendicitis, or an ulcer. Even though the doctor was tricked, the diagnostic methods were not invalid. Additionally, Spitzer has pointed out that although the pseudopatients behaved normally once admitted to the hospital, such symptom variation in psychiatric disorders is common and does not mean that the staff was incompetent in failing to detect the ruse.

The controversy over the validity of psychological diagnosis which began with Rosenhan's 1973 article continues. Regardless of the eventual outcome, there is little question that Rosenhan's study remains one of the most influential in the history of psychology.

RECENT APPLICATIONS

As an indication of this continuing controversy, we can consider two of many studies that have used Rosenhan's research in challenging the validity of diagnoses made by mental health professionals. One of these is by Thomas Szasz, a psychiatrist who has been a well-known critic of the concept of mental illness since the early 1970s. His contention has been that mental illnesses are not diseases and cannot be properly understood as such, but rather must be seen as *problems in living* that have social and environmental causes. In one article, he makes the case that the *crazy talk* exhibited by some who have been diagnosed with a mental illness "is not a valid reason for concluding that a person is insane" simply because one person (the mental health professional) cannot comprehend the other (the patient) (Szasz, 1993, p. 61).

Another study building on Rosenhan's 1973 article examined how psychiatric patients themselves experience the stigma associated with having a diagnostic label (Wahl, 1999). This study surveyed more than 1,300 *mental health consumers* asking about their experiences with being stigmatized and discriminated against. The majority of respondents reported feeling the effects of the stigma surrounding mental illness from various sources including community members in general, family, church members, coworkers, and even mental health professionals. In addition, the author reported, "The majority of respondents tended to try to conceal their disorders and worried a great deal that others would find out about their psychiatric status and treat them unfavorably. They reported discouragement, hurt, anger, and lowered self-esteem as a result of their experiences and urged public education as a means for reducing stigma" (p. 467).

Well, perhaps we are making some progress on the public education front. In a study by Boisvert and Faust (1999), subjects were presented with scenarios about an employee who behaved in a violent manner toward his boss. The scenarios varied in the amount of stress the employee was said to be experiencing, and in some of the scenarios the employee was described as having been previously diagnosed with schizophrenia. The researchers predicted that subjects would be more likely to attribute the violence to the employee's personality when the schizophrenia label was attached, but would lean more toward blaming the environmental stress when there was no evidence of mental illness. Guess what. They found just the opposite. The subjects blamed the personality of the employee *less* as stress increased *regardless* of the presence of the schizophrenia label. Furthermore, the researchers obtained the same results when the participants were real-life practicing mental health clinicians and when they were college students.

So, it is hoped that we can take some comfort in this evidence that tolerance and understanding of mental illness is increasing. The reality is that, so far, diagnosing mental illnesses continues to be as much art as it is science. Chances are we will never do away with *labels;* they appear to be a necessary part of effective treatment of psychological disorders, just as

names of diseases are part of diagnosing and treating physical illnesses. So, if we are stuck with labels (no pun intended), we must continue to work to take the stigma, embarrassment, and shame out of them.

Greenberg, J. (1981, June/July). An interview with David Rosenhan. *APA Monitor,* 4–5.
Boisvert, C., & Faust, D. Effects of the label "schizophrenia" on causal attributions of violence. *Schizophrenia Bulletin, 25*(3), 479–491.
Rosenhan, D. L. (1975). The contextual nature of psychiatric diagnosis. *Journal of Abnormal Psychology, 84,* 442–452.
Spitzer, R. L. (1976). More on pseudoscience in science and the case of the psychiatric diagnosis: A critique of D. L. Rosenhan's "On being sane in insane places" and "The contextual nature of psychiatric diagnosis." *Archives of General Psychiatry, 33,* 459–470.
Szasz, T. (1993). Crazy talk: Thought disorder or psychiatric arrogance? *British Journal of Medical Psychology, 66,* 61–67.
Wahl, O. (1999). Mental health consumers' experience of stigma. *Schizophrenia Bulletin, 25*(3), 467–478.

YOU'RE GETTING DEFENSIVE AGAIN!

Freud, A. (1946). *The ego and the mechanisms of defense.* New York: International Universities Press.

In a book about the history of research that changed psychology, there is one imposing figure who would be extremely difficult to omit: Sigmund Freud (1856–1939). It is very unlikely that psychology would exist today as it does, in spite of its varied and complex forms, without Freud's contributions. It was he who was largely responsible for elevating our interpretations of human behavior (especially abnormal behavior) from superstitions of demonic possession and evil spirits to the rational ideas of reason and science. So without an examination of his work, this book would be incomplete. Now, you may be asking yourself, if Sigmund Freud is so important, why does this discussion focus on a book written by his daughter, Anna Freud? The answer to that question requires a bit of explanation.

Although Sigmund Freud was integral to psychology's history and, therefore, is a necessary part of this book, the task of including his research here along with all the other researchers was a difficult one. The reason for this difficulty was that Freud did not reach his discoveries through a clearly defined scientific methodology. It was not possible to choose a single study or series of experiments to represent his work, as has been done for other researchers in this book. Freud's theories grew out of careful observations of his patients over decades of clinical analysis. Consequently, his writings were abundant, to say the least. The English translation of his collected writings, *The Standard Edition of the Complete Psychological Works of Sigmund Freud* (London: Hogarth Press, 1953 to 1974), totals 24 volumes! Obviously, only a very small piece of his work could be discussed here.

In choosing what to include here, consideration was given to the portions of Freud's theories that have stood the test of time relatively unscathed.

Over the past century, a great deal of criticism has been focused on Freud's ideas and, in the last 40 years especially, his work has been drawn into serious question from a scientific perspective. Critics have argued that many of his theories either cannot be tested scientifically; or if they are tested, they prove to be generally unreliable. Therefore, while few would doubt the historical importance of Freud, many of his theories about the structure of personality, the development of personality through the psychosexual stages, and the sources of people's psychological problems have been rejected by most psychologists today. However, some aspects of his work have received more positive reviews through the years and now enjoy relatively wide acceptance. One of these is his concept of the *defense mechanisms.* These are weapons that your ego uses to protect you from your own self-created anxiety. This element from his work has been selected to represent Freud in this book.

Sigmund Freud's discovery of defense mechanisms occurred gradually over 30 or more years as his experiences in dealing with psychological problems grew. A cohesive, self-contained discussion of this topic does not appear anywhere in Sigmund Freud's many volumes. In fact, he passed that job on to his daughter, who was an important psychoanalyst in her own right, specializing in children. Freud acknowledged this fact in 1936 just before Anna's book, *The Ego and the Mechanisms of Defense,* was originally published in German: "There are an extremely large number of methods (or mechanisms, as we say) used by the ego in the discharge of its defensive functions. My daughter, the child analyst, is writing a book about them" (S. Freud, 1936). Since it was Anna Freud who synthesized her father's theories regarding the defense mechanisms into a single work, her book has been chosen for our discussion of the work of Sigmund Freud.

THEORETICAL PROPOSITIONS

In order to examine Freud's notion of defense mechanisms, it is necessary to explain briefly his theory of the structure of personality. Freud proposed that personality consists of three components: the id, the ego, and the superego.

The id consists of basic biological urges such as hunger, thirst, and sexual impulses. Whenever these needs are not met, the id generates strong motivation for the person to find a way to satisfy them, and do so immediately! The id operates on what Freud called the *pleasure principle* and demands instantaneous gratification of all desires, regardless of reason, logic, safety, or morality. Freud believed that there are dark, antisocial, and dangerous instinctual urges (especially sexual ones) present in everyone's id that constantly seek expression. You are not usually aware of these because the id operates on the unconscious level. However, if you were lacking the other parts of your personality and only had an id, your behavior would be amoral, shockingly deviant, and even fatal to you and others.

The reason you do not behave in these dangerous and deviant ways is that your ego and superego develop to place limits and controls on the

impulses of your id. According to Freud, the ego operates on the *reality principle,* which means it is alert to the real world and the consequences of behavior. The ego is conscious and its job is to satisfy your id's urges, but to do so using means that are rational, socially acceptable, and reasonably safe.

However, the ego also has limits placed upon it by the superego. Your superego, in essence, requires that the solutions the ego finds to the id's needs are moral and ethical, according to your own internalized set of rules about what is good or bad. These rules were instilled in you by your parents, and if you behave in ways that violate them your superego will punish you with its own very effective weapon: guilt. Do you recognize this? It is commonly referred to as your conscience. Freud believed that your superego operates on both conscious and unconscious levels.

So, Freud's conceptualization of your personality was a dynamic one in which the ego is constantly trying to balance the needs and urges of the id with the moral requirements of the superego in determining your behavior. Here is an example of how this might work. Imagine a 16-year-old boy strolling down the street in a small town. It is 10 P.M. and he is on his way home. Suddenly he realizes he is hungry. He passes a grocery store and sees food on the other side of the large windows, but the store is closed. His id might say, "Look! Food! Jump through the glass and get some!" (Remember, the id wants immediate satisfaction, regardless of the consequences.) He would probably not be aware of the id's suggestion because it would be at a level below his consciousness. The ego would *hear* it, though, and since its job is to protect the boy from danger, it might respond, "No, that would be dangerous. Let's go around back, break into the store, and steal some food!" At this, the superego would remark indignantly, "You can't do that! It's immoral, and if you do it I will punish you!" So his ego reconsiders and makes a new suggestion that is acceptable to both the id and the superego! "You know, there's an all-night fast-food place four blocks over. Let's go there and buy some food." This solution, assuming that the boy is psychologically healthy, is the one that makes it to his consciousness and is reflected in his behavior.

According to Freud, the reason most people do not behave in antisocial or deviant ways is because of this system of checks and balances among the three parts of the personality. But what would happen if the system malfunctioned—if this balance were lost? One way this could happen would be if the demands of the id became too strong to be controlled adequately by the ego. What if the unacceptable urges of the id edged their way into your consciousness (into what Freud called the *preconscious*) and began to overpower the ego? Freud contended that if this happens, you will experience a very unpleasant condition called anxiety. Specifically, he called it *free-floating* anxiety, because although you feel anxious and afraid, you are not sure why you feel this way, since the causes are still not fully conscious.

When this state of anxiety exists, it is uncomfortable and we are motivated to change it. To do this the ego will bring on its big guns, called the *defense mechanisms.* The purpose of the defense mechanisms is to prevent the

id's forbidden impulse from entering consciousness. If this is successful, the discomfort of the anxiety associated with the impulse is relieved. How do the defense mechanisms ward off anxiety? Well, they do it through self-deception and the distortion of reality so that the id's urges will not have to be acknowledged.

METHOD

Freud discovered the defense mechanisms gradually over many years of clinical interactions with his patients. In the years since Sigmund Freud's death and since the publication of Anna Freud's book, many refinements have been made in the interpretation of the defense mechanisms. The next section summarizes a selection of only those mechanisms identified by Sigmund Freud and elaborated on by his daughter.

RESULTS AND DISCUSSION

Anna Freud identified 10 defense mechanisms that had been described by her father (see p. 44 of her book). Five of the original mechanisms that are commonly used and widely recognized today will be discussed here: repression, regression, projection, reaction formation, and sublimation. Keep in mind that the primary function of the defense mechanisms is to alter reality in order to protect against anxiety.

Repression

Repression is the most basic and commonly used mechanism of defense. In his early writings, Freud used the terms repression and defense interchangeably and interpreted repression to be virtually the only defense mechanism. Later, however, he acknowledged that repression was only one of many psychological processes available to protect a person from anxiety (p. 43). Repression does this by forcing disturbing thoughts out of consciousness. If this is accomplished successfully, the anxiety associated with the "forbidden" thoughts is avoided. In Freud's view, repression is often employed to defend against the anxiety that would be produced by unacceptable sexual desires. For example, a woman who has sexual feelings about her father would probably experience intense anxiety if these impulses were to become conscious. To avoid that anxiety, she might repress her unacceptable desires, forcing them fully into her unconscious. This would not mean that her urges are gone, but since they are repressed, they cannot produce anxiety.

You might be wondering how such thoughts are ever discovered if they remain in the unconscious. According to Freud, these hidden conflicts may be revealed through slips of the tongue, through dreams, or by the various techniques used in psychoanalysis, such as free association or hypnosis. Furthermore, repressed desires can create psychological problems that are expressed in the form of neuroses. For instance, consider again the woman who has repressed sexual desires for her father. She might express these impulses by becoming involved in successive failed relationships with men in an unconscious attempt to resolve her conflicts about her father.

Regression

Regression is a defense used by the ego to guard against anxiety by causing the person to retreat to the behavior of an earlier stage of development that was less demanding and safer. Often when a second child is born into a family, the older sibling will regress to using earlier speech patterns, wanting a bottle, and even bed-wetting. Adults can use regression as well. Consider a man experiencing a *midlife crisis* who is afraid of growing old and dying. To avoid the anxiety associated with these unconscious fears, he might regress to an adolescent stage by becoming irresponsible, cruising around in a sports car, trying to date younger women, and even eating the foods associated with his teenage years. Another example of regression is the married adult who *goes home to mother* whenever there is a problem in the marriage.

Projection

Imagine for a moment that your ego is being attacked by your id. You're not sure why, but you are experiencing a lot of anxiety. If your ego uses the defense mechanism of projection to eliminate the anxiety, you will begin to see your unconscious urges in other people's behavior. That is, you will project your impulses onto others. This externalizes the anxiety-provoking feelings and reduces the anxiety. You will not be aware that you're doing this, and the people onto whom you project will probably not be guilty of your accusations. An example of this offered by Anna Freud involves a husband who is experiencing impulses to be unfaithful to his wife (p. 120). He may not even be conscious of these urges, but they are creeping up from his id and creating anxiety. To ward off the anxiety, he projects his desires onto his wife, becomes intensely jealous, and accuses her of having affairs, even though there is no evidence to support his claims. Another example is the woman who is afraid of aging and begins to point out how old her friends and acquaintances are looking. The individuals in these examples are not acting or lying, but truly believe their projections. If they did not, the defense against anxiety would fail.

Reaction Formation

The defense identified by Freud as a reaction formation is exemplified by a line from Shakespeare's Hamlet, when Hamlet's mother, after watching a scene in a play, remarks to Hamlet, "The lady doth protest too much, me thinks." When a person is experiencing unacceptable, unconscious *evil* impulses, anxiety over them might be avoided by engaging in behaviors that are the exact opposite of the id's real urges. Anna Freud pointed out that these behaviors are usually exaggerated or even obsessive (p. 9). By adopting attitudes and behaviors that demonstrate outwardly a complete rejection of the id's true desires, anxiety is blocked. Reaction formations tend to appear rapidly and usually become a permanent part of an individual's personality unless the id-ego conflict is somehow resolved. As an example of this, reconsider the husband who unconsciously desires other women. If he employs reaction formation rather than projection to prevent his anxiety, he may

become obsessively devoted to his wife and shower her with gifts and pronouncements of his unwavering love. Another example comes from recent disturbing news reports of the violent crime referred to as *gay bashing*. In a Freudian interpretation, men who have unconscious homosexual tendencies might engage in this extreme opposite behavior of attacking and beating gay men to avoid their true desires and the anxiety associated with them.

Sublimation

Both Sigmund and Anna Freud considered most of the defense mechanisms, including the four described above, as indicating problems in psychological adjustment (neuroses). Conversely, the defense of sublimation was seen as not only normal, but desirable (p. 44). When people invoke sublimation, they are finding socially acceptable ways of discharging energy that is the result of unconscious forbidden desires. Freud maintained that since everyone's id contains these desires, sublimation is a necessary part of a productive and healthy life. Furthermore, he believed that most strong desires can be sublimated in various ways. Someone who has intense aggressive impulses might sublimate them by engaging in contact sports or becoming a surgeon. A teenage girl's passion for horseback riding might be interpreted as sublimated unacceptable sexual desires. A man who has an erotic fixation on the human body might sublimate his feelings by becoming a painter or sculptor of nudes.

Freud believed that all of what we call civilization has been possible through the mechanism of sublimation. In his view, humans have been able to sublimate their primitive biological urges and impulses, allowing them to build civilized societies. Sometimes, Freud suggested, our true unconscious forces overpower our *collective ego* and these primitive behaviors burst out in uncivilized expressions such as war. Overall, however, it is only through sublimation that civilization can exist at all (S. Freud, 1930).

IMPLICATIONS AND RECENT APPLICATIONS

Although Anna Freud made it clear in her book that the use of defense mechanisms is often associated with neurotic behavior, it should be pointed out that this is not always the case. Nearly everyone uses various defense mechanisms occasionally in their lives, especially to help them deal with periods of increased stress. They help us reduce our anxiety and maintain a positive self-image. Nevertheless, defense mechanisms involve self-deception and distortions of reality that can produce negative consequences if they are overused. For example, a person who uses regression every time life's problems become overwhelming might never develop the strategies necessary to deal with the problems and solve them. Consequently, the person's life will not become as effective as it could be. Moreover, Freud and many other psychologists have contended that when anxiety over specific conflicts is repressed, it is sometimes manifested in other ways, such as phobias, anxiety attacks, or obsessive-compulsive disorders.

Freud's theories have always been extremely controversial. Do the defense mechanisms really exist? Do they actually function unconsciously to block the anxiety created by the forbidden impulses of the id trying to enter the conscious? Probably the most often cited criticism of all of Freud's work is that to test it scientifically is difficult at best, impossible at worst. Many studies have tried to demonstrate the existence of various Freudian concepts. The results have been mixed. Some of his ideas have found scientific support (see Cramer, 2000), while others have been disproven and still others simply cannot be studied (see Fisher & Greenberg, 1977, 1995).

Two fascinating recent studies may have found scientific and even physical evidence for the defense mechanisms of *repression* (the distorted belief that a real event did not happen) and *reaction formation.* One remarkable investigation examined patients with damage to the right brain hemisphere who often deny the paralysis they experience on their right side (see the discussion of Gazzaniga's research on brain hemispheric specialization in the first section of this book). Ramachandran (1995) tested these patients to see if they have tacit or, in Freudian terms, *repressed* knowledge of their paralysis. He gave the subjects a choice of activities, one requiring both hands, tying shoelaces, and one needing only one hand, threading a bolt into a threaded hole. The subjects nearly always chose the two-handed task and, even though their paralysis made success impossible, they displayed no frustration after failing many times. Next, the researcher devised a virtual-reality program to give the subjects the illusion of being able to move their left arm. When the subjects experienced movement in their paralyzed hand they showed no surprise at this event. These findings indicated a very real lack of awareness of the paralysis. Finally, and this is the incredible part, Ramachandran irrigated the left ear of one of the patients with cold water. "Surprisingly, this allowed her 'repressed' memory of the paralysis to come to the surface; she said she had been paralyzed continuously for several days" (p. 22). The author suggests that the cold water stimulated a part of the inner ear known as the *vestibular system* which is involved in balance, upright posture, and visual tracking during head movement. Recently, this system has also been associated with REM sleep and lucid dreaming, and based on Ramachandran's findings, may provide a neurological link for the Freudian psychological phenomena of repression.

The second article found evidence that *homophobia,* the irrational fear, avoidance, and prejudice some heterosexual people feel toward gay and lesbian individuals, may actually be a *reaction formation* used to ward off the extreme anxiety caused by their own repressed homosexual tendencies (Adams, Wright, & Lohr, 1996). A group of men were given a test to determine their level of homophobia and divided into two groups: homophobic and nonhomophobic. Then, subjects were exposed to videos depicting heterosexual, gay, or lesbian explicit sexual scenes and, while they viewed these videos, monitored for physiological signs of sexual arousal. The only difference found between the groups was when they viewed the videos of gay males. In this condition, "the results indicate that the homophobic men showed a

significant increase in [arousal], but that the [nonhomophobic] men did not" (p. 443). In fact, 66% of the nonhomophobic group showed no significant signs of arousal while viewing the homosexual video, but only 20% of the homophobic group showed little or no evidence of arousal. Furthermore, when asked to subjectively assess their level of arousal, the homophobic men underestimated their degree of arousal in response to the homosexual video. This study's results are clearly consistent with Anna Freud's description of the defense mechanism of reaction formation and lend support for the explanation of violence against gay individuals discussed earlier in this section.

CONCLUSION

As evidenced by the two studies discussed above, scientific interest in the defense mechanisms appears to be on the upswing among psychologists in various subfields including cognitive, developmental, personality, and social psychology (Cramer, 2000). Through an awareness and understanding of the defense mechanisms, your ability to obtain important insights into the causes of people's actions is clearly enhanced. This understanding can show you how and when a person's behavior may be motivated by forces other than those readily observable. If you keep a list of the defense mechanisms handy in your brain's back pocket, you may begin to notice them in others or even in yourself. By the way, if you think someone is using a defense mechanism, remember, he or she is doing so to avoid unpleasant anxiety. Therefore, it is probably not a great idea to bring it to his or her attention. Knowledge of the defense mechanisms can be a powerful tool in your interactions with others, but it must be used carefully and responsibly.

You can easily experience for yourself the continuing influence of Anna Freud's synthesis and analysis of her father's concept of the defense mechanism by picking up virtually any recent academic or scholarly work that discusses psychoanalytic theory in detail. Most of the Freud citations you will encounter will be referring to Sigmund, and rightly so. But, when the discussion turns to the defense mechanisms, it is Anna Freud's 1946 book and its various revisions that serve as the authoritative work on the topic (see Couch, 1995).

Adams, H., Wright, L., & Lohr, B. (1996). Is homophobia associated with homosexual arousal? *Journal of Abnormal Psychology, 105*(3), 440–445.

Couch, A. (1995, February). Anna Freud's adult psychoanalytic technique: A defense of classical analysis. *International Journal of Psychoanalysis, 76,* 153–171.

Cramer, P. (2000). Defense mechanisms in psychology today: Further processes for adaptation. *American Psychologist, 55*(6), 637–646.

Fisher, S., & Greenberg, R. (1977). *The scientific credibility of Freud's theories and therapy.* New York: Basic Books.

Fisher, S., & Greenberg, R. (1995). *Freud scientifically reappraised: Testing the theories and therapy.* New York: Wiley.

Freud, S. (1936). *A disturbance of memory on the Acropolis.* London: Hogarth Press. (Original publication in German, 1936)

Freud, S. (1961). *Civilisation and its discontents.* London: Hogarth Press. (Original publication in German, 1930)

Ramachandran, V. (1995). Anosognosia in the parietal lobe syndrome. *Consciousness and Cognition, 4*(1), 22–51.

LEARNING TO BE DEPRESSED

Seligman, M. E. P., & Maier, S. F. (1967). Failure to escape traumatic shock. *Journal of Experimental Psychology, 74,* 1–9.

If you are like most people, you expect that your actions will produce certain consequences. Your expectations cause you both to behave in ways that will produce desirable consequences and to avoid behaviors that will lead to undesirable consequences. In other words, your actions are determined, at least in part, by your belief that they will bring about a certain result; they are contingent upon a certain consequence. (See the reading on B. F. Skinner in Chapter 3, "Learning and Conditioning," and on J. Rotter in Chapter 7, "Personality," for discussions of behavioral contingencies.)

Let's assume for a moment that you are unhappy in your present job, so you begin the process of making a change. You make contacts with others in your field, read publications that advertise positions in which you are interested, begin training in the evening to acquire new skills, and so on. All of those actions are motivated by your belief that your effort will eventually lead to the outcome of a better job and a happier life. The same is true of interpersonal relationships. If you are in a relationship that is wrong for you because it is abusive or it otherwise makes you unhappy, you will take the necessary actions to change it or end it because you expect to succeed in making the desired changes.

All of these are issues of power and control. Most people believe they are personally powerful and able to control what happens to them, at least part of the time, because they have exerted control in the past and have been successful. They believe they are able to help themselves achieve their goals. If this perception of power and control is lacking, all that is left is helplessness. If you feel you are stuck in an unsatisfying job and you are unable to find another job or learn new skills to improve your professional life, you will be unlikely to make the effort needed to change. If you are too dependent on the person with whom you have a damaging relationship and you feel powerless to fix it or end it, you may simply remain in the relationship and endure the pain.

Perceptions of power and control are crucial for psychological and physical health (refer to the discussion on the research by Langer and Rodin on issues of control for the elderly in nursing homes in Chapter 5, "Human Development"). Imagine how you would feel if you suddenly found that you no longer had the power or control to make changes in your life, that what happened to you was independent of your actions. You would probably feel helpless and hopeless, and you would give up trying altogether. In other words, you would become depressed.

Martin Seligman, a well-known and influential behavioral psychologist, maintains that our perceptions of power and control are learned from experience. He believes that when a person's efforts at controlling certain life

events fail repeatedly, the person may stop attempting to exercise control altogether. If these failures happen often enough, the person may generalize the perception of lack of control to all situations, even when control may actually be possible. This person then begins to feel like a *pawn of fate* and becomes helpless and depressed. Seligman termed this cause of depression *learned helplessness.* He developed his theory at the University of Pennsylvania, in a series of now classic experiments that used dogs as subjects. The research discussed here that Seligman conducted with Steven Maier is considered to be the definitive original demonstration of his theory.

THEORETICAL PROPOSITIONS

Seligman had found in an earlier experiment on learning that when dogs were exposed to electrical shocks they could neither control nor escape from, they later failed to learn to escape from shocks when such escape was easily available. You have to imagine how odd this looked to a behaviorist. In the laboratory, dogs had experienced shocks that were designed to be punishing, but not harmful. Later, they were placed in a *shuttle box,* which is a large box with two halves divided by a partition. An electrical current could be activated in the floor on either side of the box. When a dog was on one side and felt the electricity, it simply had to jump over the partition to the other side to escape the shock. Normally, dogs and other animals learn this escape behavior very quickly (it's not difficult to see why!). In fact, if a signal (such as a flashing light or a buzzer) warns the dog of the impending electrical current, the animal will learn to jump over the partition before the shock and thus avoid it completely. However, in Seligman's experiment, when the dogs that had already experienced electrical shocks from which they could not escape were placed in the shuttle box, they did not learn this escape-avoidance behavior.

Seligman theorized that there was something in what the animals had learned about their ability to control the unpleasant stimulus that determined the later learning. In other words, these dogs had learned from previous experience with electrical shocks that their actions were ineffective in changing the consequence of the shocks. Then, when they were in a new situation where they did have the power to escape—to exercise control—they just gave up. They had learned to be helpless.

To test this theory, Seligman and Maier proposed to study the effect of controllable versus uncontrollable shock on later ability to learn to avoid shock.

METHOD

This is one of several classic studies in this book that used animals as subjects. However, this one, probably more than any of the others, raises questions about the ethics of animal research. Dogs received electrical shocks that were designed to be painful (though not physically harmful) in order to test a psychological theory. Whether such treatment was (or is) ethically justifiable is an issue that must be faced by every researcher and student of

psychology. (This issue will be addressed again after a discussion of the results of Seligman's research.)

Subjects for this experiment were 24 "mongrel dogs, 15 to 19 inches high at the shoulder and weighing between 25 and 29 pounds" (p. 2). They were divided into three groups of eight subjects each. One group was the *escape group,* another the *no-escape group,* and the third was the *no-harness control group.*

The dogs in the escape and no-escape groups were placed individually in a harness similar to that developed by Pavlov (see the discussion of Pavlov's methods in Chapter 3, "Learning and Conditioning"); they were restrained, but not completely unable to move. On either side of the dog's head was a panel to keep the head facing forward. A subject could press the panel on either side by moving its head. When an electrical shock was delivered to a dog in the escape group, it could terminate the shock by pressing either panel with its head. For the no-escape group, each dog was paired with a dog in the escape group (this is an experimental procedure called *yoking*). Identical shocks were delivered to each pair of dogs at the same time, but the no-escape group had no control over the shock. No matter what those dogs did, the shock continued until it was terminated by the panel press of the dog in the escape group. This ensured that both groups of dogs received exactly the same duration and intensity of shock, the only difference being that one group had the power to stop it and the other did not. The eight dogs in the no-harness control group received no shocks at this stage of the experiment.

The subjects in the escape and no-escape groups received 64 shocks at about 90-second intervals. The escape group quickly learned to press the side panels and terminate the shocks (for themselves and for the no-escape group). Then, 24 hours later, all the dogs were tested in a shuttle box similar to the one described earlier. There were lights on either side of the box. When the lights were turned off on one side, an electrical current would pass through the floor of the box 10 seconds later. If a dog jumped the barrier within those 10 seconds, it escaped the shock completely. If not, it would continue to feel the shock until it jumped over the barrier or until 60 seconds of shock passed, at which time the shock was discontinued. Each dog was given 10 trials in the shuttle box.

Learning was measured by the following: (1) how much time it took, on average, from the time the light in the box went out until the dog jumped the barrier, and (2) the percentage of dogs in each group that failed entirely to learn to escape the shocks. Also, the dogs in the no-escape group received 10 additional trials in the shuttle box seven days later to assess the lasting effects of the experimental treatment.

RESULTS

In the escape group, the time it took for the dogs to press the panel and stop the shock quickly decreased over the 64 shocks. In the no-escape group, panel pressing completely stopped after 30 trials.

Figure 1 shows the average time to escape for the three groups of subjects over all the trials in the shuttle box. Remember, this was the time between when the lights were turned off and when the animal jumped over the barrier. The difference between the no-escape group and the other two groups was statistically significant, but the small difference between the escape group and the no-harness group was insignificant. Figure 2 illustrates the percentage of subjects from each group that failed to jump over the barrier and escape the shock in the shuttle box in at least 9 of the 10 trials. This difference between the escape and no-escape groups was also highly significant. Six of the subjects in the no-escape group failed entirely to escape on either 9 or all 10 of the trials. Those six dogs were tested again in the shuttle box 7 days later. In this delayed test, five of the six failed to escape on every trial.

DISCUSSION

Since the only difference between the escape and the no-escape groups was the dogs' ability to actively terminate the shock, Seligman and Maier concluded that it must have been this control factor that accounted for the clear difference in the two groups' later learning to escape the shock in the shuttle box. In other words, the reason the escape group subjects performed normally in the shuttle box was that they had learned in the harness phase that their behavior was correlated with the termination of the shock. Therefore, they were motivated to jump the barrier and escape from the shock. For the no-escape group, the termination of shock in the harness was independent of their behavior. Thus, since they had no expectation that their behavior in the shuttle box would terminate the shock, they had no incentive to attempt to escape. They had, as Seligman and Maier had predicted, learned to be helpless.

Occasionally, a dog from the no-escape group made a successful escape in the shuttle box. Following this, however, it reverted to helplessness

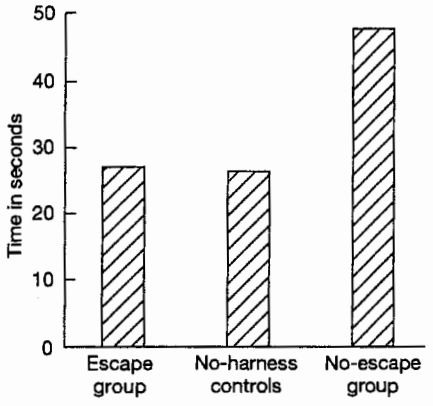

FIGURE 1 Average time to escape in shuttle box. (from p. 3)

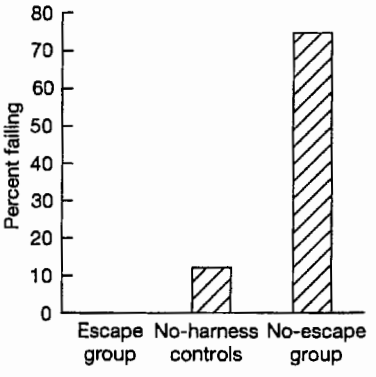

FIGURE 2 Percent of subjects failing to learn to escape shock in shuttle box. (from p. 3)

on the next trial. Seligman and Maier interpreted this to mean that the animal's previous ineffective behavior in the harness prevented the formation of a new behavior (jumping the barrier) to terminate shock in a new situation (the shuttle box), even after a successful experience.

In their article, Seligman and Maier reported the results of a subsequent experiment that offered some interesting additional findings. In this second study, dogs were first placed in the harness-escape condition where the panel press would terminate the shock. They were then switched to the no-escape harness condition before receiving 10 trials in the shuttle box. These subjects continued to attempt to panel press throughout all the trials in the no-escape harness and did not give up as quickly as did those in the first study. Moreover, they all successfully learned to escape and avoid shock in the shuttle box. This indicated that once the animals had learned that their behavior could be effective, subsequent experiences with failure were not adequate to extinguish their motivation to change their fate.

SUBSEQUENT RESEARCH

Of course, Seligman wanted to do what you are probably already doing: Apply these findings to humans. In later research, he asserted that the development of depression in humans involves processes similar to those of learned helplessness in animals. In both situations there is passivity, giving up and *just sitting there,* lack of aggression, slowness to learn that a certain behavior is successful, weight loss, and social withdrawal. Both the helpless dog and the depressed human have learned from specific past experiences that their actions are useless. The dog was unable to escape the shocks, no matter what it did, while the human had no control over events such as the death of a loved one, an abusive parent, the loss of a job, or a serious illness (Seligman, 1975).

The learned helplessness that leads to depression in humans can have serious consequences beyond the depression itself. Research has demonstrated that the elderly who, for various reasons such as nursing-home living, are forced to relinquish control over their daily activities have poorer health and a greater chance of dying sooner than those who are able to maintain a sense of personal power (for a discussion of related research by Langer and Rodin, see the reading on their nursing home study). In addition, several studies have demonstrated that uncontrollable stressful events can play a role in serious diseases such as cancer. One such study found an increased risk of cancer in individuals who in previous years had suffered the loss of a spouse, the loss of a profession, or the loss of prestige (Horn & Picard, 1979). In hospitals, patients are expected by the doctors and staff to be cooperative, quiet, and willing to place their fates in the hands of the medical authorities. Patients believe that they must follow doctors' and nurses' instructions without question in order to recover as quickly as possible. A prominent health psychologist has suggested that being a *good hospital patient* implies that one must be passive and give up all expectations of

control. This actually may create a condition of learned helplessness in the patients whereby they fail to exert control later when control is both possible and desirable for continued recovery (Taylor, 1979).

As further evidence of the learned helplessness effect, consider the following remarkable study by Finkelstein and Ramey (1977). Groups of human infants had rotating mobiles mounted over their cribs. One group of infants had special pressure-sensitive pillows so that by moving their heads, they could control the rotation of the mobile. Another group of infants had the same mobiles, but these were programmed to turn randomly without any control by the infants. After a two-week exposure to the mobiles for 10 minutes each day, the control-pillow group had become very skilled at moving their heads to make the mobiles turn. However, the most important finding came when the no-control group of infants was later given the same control pillows and an even greater amount of learning time than the first group. The infants failed entirely to learn to control the rotation of the mobiles. Their experience in the first situation had taught them that their behavior was ineffective, and this knowledge transferred to the new situation where control was possible. In terms of moving mobiles, the infants had learned to be helpless.

RECENT APPLICATIONS

Seligman's study of learned helplessness continues to influence current research and stimulate debate in many fields. His ideas dovetail with those of other researchers working to increase our understanding of the importance of personal control over events in our lives (such as Langer and Rodin's study on perceived control in nursing homes discussed in Chapter 5).

One example of this broad influence may be found even in research on the psychology of biological, chemical, and nuclear warfare. A study by Stokes and Banderet (1997) applied Selignam's theory of learned helplessness to reactions of military and nonmilitary individuals' experiences during World War I, the Gulf War in 1991, and a chemical terrorist attack in a Tokyo subway in 1995. The researchers found that people's sense of utter helplessness in the face of a biological, chemical, or nuclear warfare attack tends to produce underreactions (such as denial and doing nothing) or overreactions (such as blind panic), both of which are completely ineffective in the face of such dangers. The authors suggest the incorporation of proven psychological principles to enhance effectiveness in the training of military and law enforcement personnel for these potential threats.

Another study focused on how experiences of helplessness in early childhood may lead to anxiety disorders in adulthood (Chorpita & Barlow, 1998). The authors of this study suggest that "early experience with diminished control may foster a cognitive style charactertized by an increased probability of interpreting subsequent events as out of one's control, which may represent a psychological vulnerably for anxiety" (p. 3).

Finally, a study that is closely linked to our growing understanding of how children learn examined the relationship between learning disabilities

and learned helplessness (Hersh, Stone, & Ford, 1996). In this study, third graders with learning disabilities were compared with third graders without identified learning problems on a reading task designed to be above their level of reading ability. Both groups failed the reading task, but the students with learning disabilities displayed a significantly more difficult time recovering from the stress of the failure compared to their non-learning-disabled peers. Applying Seligman's theory to these findings, it is important to consider the possibility that the stress these students experienced following failure may lead to further failure which, in turn, may cause them to simply give up and stop trying—or, in other words, learn to be helpless.

CONCLUSION

It is important to return to the issue of experimental ethics. For most of us, it is difficult to read about animals, especially dogs, being subjected to painful shocks in a psychology laboratory. Over the years, standards have been developed to ensure that laboratory animals are treated humanely (see the discussion of this issue in the preface of this book). However, there are many, both within and outside the scientific professions, who believe these standards to be inadequate. Some advocate the complete elimination of animal research in psychology, medicine, and all the sciences. Whatever your personal stand on this issue, the question you should be asking is this: Do the findings from the research extend our knowledge, reduce human suffering, and improve the quality of life sufficiently to justify the methods used to carry out the study?

Ask yourself that question about this study by Seligman and Maier. What they found were the beginnings of a theory to explain why some people become helpless, hopeless, and depressed. Seligman went on to develop a widely accepted model of the origins of and treatments for depression. Over the years his theory has been refined and detailed so that it applies more accurately to types of depression that occur under well-defined conditions. For example, individuals are most likely to become depressed if they have learned to attribute their lack of control to causes that are (1) permanent rather than temporary, (2) related to factors within their own personality (instead of situational factors), and (3) pervasive across many areas of their life (see Abramson, Seligman, & Teasdale, 1978). By understanding this, therapists and counselors have become better able to understand, intervene in, and treat serious depression.

Does this knowledge justify the methods used in the early research on learned helplessness? You decide.

Abramson, L., Seligman, M., & Teasdale, J. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology, 87,* 49–74.

Chorpita, B., & Barlow, D. (1998). The development of anxiety: The role of control in the early environment. *Psychological Bulletin, 124*(1), 3–21.

Finkelstein, N., & Ramey, C. (1977). Learning to control the environment in infancy. *Child Development, 48,* 806–819.

Hersh, C., Stone, B., & Ford, L. (1996). Learning disabilities and learned helplessness—A

Horn, R., & Picard, R. (1979). Psychosocial risk factors for lung cancer. *Psychosomatic Medicine, 41,* 503–514.
Seligman, M. (1975). *Helplessness: On depression, development, and death.* San Francisco: Freeman.
Stokes, J., & Banderet, L. (1997). Psychological aspects of chemical defense and warfare. *Military Psychology, 9*(4), 395–415.
Taylor, S. (1979). Hospital patient behavior: Reactance, helplessness, or control? *Journal of Social Issues, 35,* 156–184.

CROWDING INTO THE BEHAVIORAL SINK

Calhoun, J. B. (1962). Population density and social pathology. *Scientific American, 206,* 139–148.

The effects of crowding on our behavior is something that has interested psychologists for decades. You have probably noticed how your emotions and behavior change when you are in a situation that you perceive as very crowded. You may withdraw into yourself and try to become invisible; you might look for an escape; or you may find yourself becoming irritable and aggressive. How you react to crowding depends on many factors.

You will notice that the title of the article of discussion in this chapter uses the phrase *population density* rather than *crowding.* While these may seem very similar, psychologists draw a clear distinction between them. Density refers to the number of individuals in a given amount of space. If 20 people occupy a 12-by-12-foot room, the room would probably be seen as densely populated. Crowding, however, refers to the subjective psychological experience created by density. That is, if you are trying to concentrate on a difficult task in that room with 20 people, you may experience extreme crowding. Conversely, if you are at a party with 20 friends in that same room, you might not feel crowded at all.

One way behavioral scientists can study the effects of density and crowding on people is to observe places where crowding already exists, such as Manhattan, Mexico City, some housing projects, prisons, and so on. The problem with this method is that all these places contain many factors that can influence behavior. For example, if we find high crime rates in a crowded inner-city neighborhood, there's no way to know for sure that crowding is the cause of the crime. Maybe it's the fact that people there are poor, or that there's a higher rate of drug abuse, or perhaps all these factors combine with crowded conditions to produce the high crime rates.

Another way to study crowding is to put human subjects into high-density conditions for relatively short periods of time and study their reactions. While this method offers more control and allows us to isolate crowding as a cause of behavior, it is not very realistic in terms of real-life crowded environments, since they usually exist over extended periods of time. It should be pointed out, however, that both of these methods have yielded some interesting findings about crowding that will be discussed later in this chapter.

Since it would be ethically impossible (because of the stress and other potential damaging effects) to place humans in crowded conditions over long periods of time simply to do research on them, there is a third way of addressing the effects of density: Do research using animal subjects (see the preface to this book for a discussion of ethics in animal research). One of the earliest and most classic series of studies of this type was conducted by John B. Calhoun in 1962. Calhoun allowed groups of white rats to increase in population to twice the number that would normally be found in a space the size of a 10-by-14-foot room and observed their "social" behavior for 16 months.

THEORETICAL PROPOSITIONS

Calhoun especially wanted to explore the effects of high density on social behavior. It may seem strange to you to think of rats as social animals, but they do socialize in various ways in their natural environment.

To appreciate what led Calhoun to the study being discussed in this chapter, it is necessary to back up several years to an earlier project he conducted. Calhoun had confined a population of rats to a quarter-acre of enclosed, protected outdoor space. Plenty of food was available; there were ideal protected nesting areas; there were no predators; and all disease was kept to a minimum. In other words, this was a rat's paradise. The point of Calhoun's early study was simply to study the population growth rate of the rats in a setting free from the usual natural controls on overpopulation (predators, disease, etc.). After 27 months, the population consisted of only 150 adult rats. This was very surprising since with the low mortality rate of adult rats in this ideal setting, and considering the usual rate of reproduction, there should have been 5,000 adults in this period of time! The reason for this small population was an extremely high infant mortality rate. Apparently, reproductive and maternal behavior had been severely altered by the stress of social interaction among the 150 rats, and very few young rats survived to reach adulthood. Even though this number of rats (150 in a quarter-acre) does not seem to be particularly dense, it was obviously crowded enough to produce extreme behavioral changes.

These findings prompted Calhoun to design a more controlled and observable situation inside the lab in order to study more closely what sorts of changes occur in the rats when they are faced with high population density. In other words, he had observed what happened, and now he wanted to find out why.

METHOD

In a series of three studies, either 32 or 56 rats were placed in a 10-by-14-foot laboratory room that was divided into four sections or pens (see Figure 1). There were ramps that allowed the rats to cross from pen 1 to pen 2, from pen 2 to pen 3, and from pen 3 to pen 4. It was not possible for the rats to cross directly between pen 1 and pen 4. Therefore, these were end-pens. If a rat wanted to go from 1 to 4, it would have to go through 2 and 3.

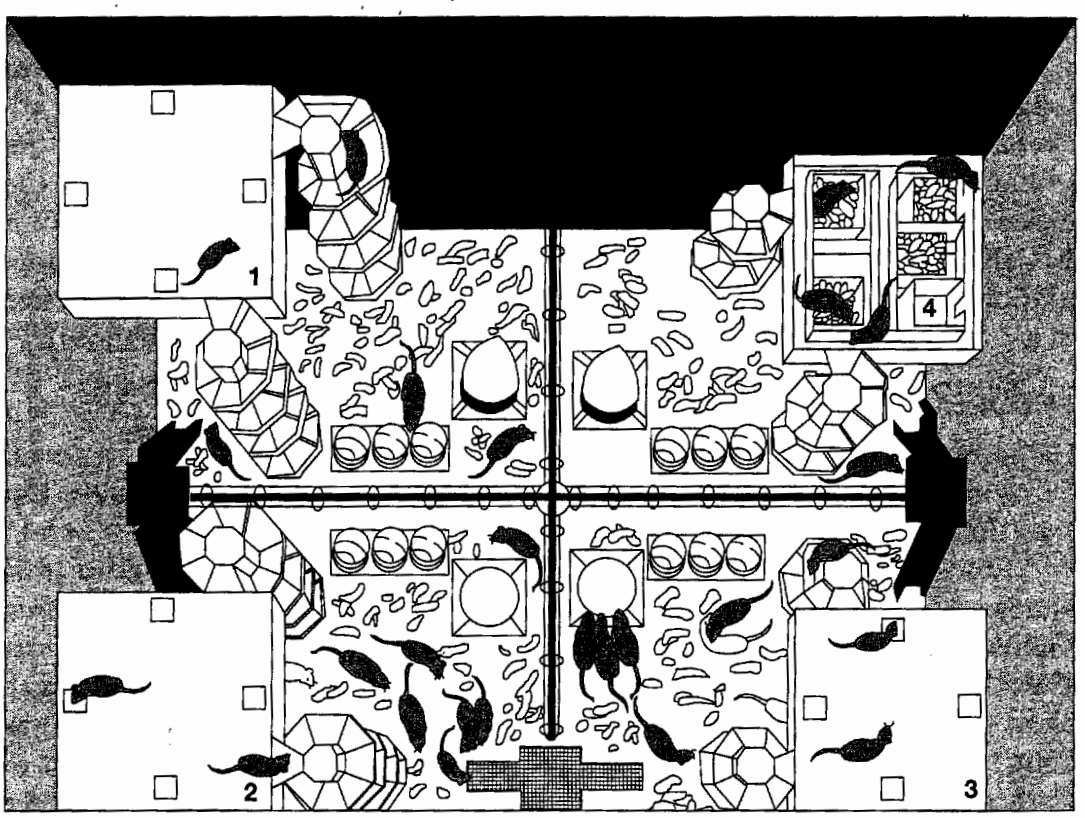

FIGURE 1 Diagram of laboratory room as arranged in Calhoun's study of crowding.

The partitions dividing the pens were electrified, so the rats quickly learned that they could not climb over them.

These pens consisted of feeders and waterers and enclosures for nests. The rats were supplied with plenty of food, water, and materials for building nests. In order to observe and record the rats' behavior there was a viewing window in the ceiling of the room.

From his years of studying rats, Calhoun was aware that this particular strain normally is found in colonies of 12 adults. Therefore, the observation room was of a size to accommodate 12 rats per pen, or a total of 48. After the groups were placed in the room, they were allowed to multiply until this normal density was nearly doubled to 80. Once the population level of 80 was reached, young rats that survived past weaning were removed so that the number of rats remained constant.

With this arrangement in place, all that was left was to observe these crowded animals for an extended period of time and record their behavior. These observations went on for 16 months.

RESULTS

It is important to keep in mind that the density of the rats was not extreme; in fact, it was quite moderate. If the rats wanted to spread out, there would only have to be 20 or so per pen. But this is not what happened. When the male rats reached maturity, they began to fight with each other for social

status as they do naturally. These fights took place in all the pens, but the outcome was not the same for all of them. If you think about the arrangement of the room, the two end-pens only had one way in and out. So when a rat won a battle for dominance in one of these pens, he could hold his position and territory (the whole pen) simply by guarding the entrance and attacking any other male that ventured over the ramp. As it turned out, only one male rat ended up in charge of each of the end-pens. However, he was not alone. The female rats distributed themselves more or less equally over all four pens. Therefore, the masters of pens 1 and 4 each had a harem of 8 to 12 females all to themselves. And they didn't take any chances. In order to prevent infiltration, the males took to sleeping directly at the foot of the ramp and were always on guard.

On occasion, there were a few other male rats in the end-pens, but they were extremely submissive. They spent most of their time in the nesting burrows with the females and only came out to feed. They did not attempt to mate with the females. The females in these pens functioned well as mothers. They built comfortable nests and nurtured and protected their offspring. In other words, life for most of the rats in these end-pens was relatively normal and reproductive behavior was successful. About half of the infant rats in those pens survived to adulthood.

The rest of the 60 or so rats crowded into the middle two pens. Since these two pens each had central feeding and watering devices, there were many opportunities for the rats to come in contact with each other. The kinds of behaviors observed among the rats in pens 2 and 3 demonstrate a phenomenon that Calhoun termed the *behavioral sink.* A behavioral sink is "the outcome of any behavioral process that collects animals together in unusually great numbers. The unhealthy connotations of the term are not accidental: A behavioral sink does act to aggravate all forms of pathology that can be found within a group" (p. 144). Let's examine some of the extreme and pathological behaviors he observed:

1. *Aggression.* Normally in the wild, male rats will fight other male rats for dominant positions in the social hierarchy. These fights were observed among the more aggressive rats in this study as well. The difference was that here, unlike in their natural environments, top-ranking males were required to fight frequently in order to maintain their positions and often the fights involved several rats in a general brawl. Nevertheless, the strongest males were observed to be the most normal within the center pens. However, even those animals would sometimes exhibit "signs of pathology; going berserk; attacking females, juveniles, and less active males; and showing a particular predilection—which rats do not normally display—for biting other rats on the tail" (p. 146).
2. *Submissiveness.* Contrary to this extreme aggression, other groups of male rats ignored and avoided battles for dominance. One of these groups consisted of the most healthy-looking rats in the pens. They were fat and their fur was full, without the usual bare spots from fighting.

However, these rats were complete social misfits. They moved through the pens as if asleep or in some sort of hypnotic trance, ignoring all others, and were, in turn, ignored by the rest. They were completely uninterested in sexual activity and made no advances, even toward females in heat.

Another group of rats engaged in extreme activity and were always on the prowl for receptive females. Calhoun termed them *probers.* Often, they were attacked by the more dominant males, but were never interested in fighting for status. They were hypersexual and many of them even became cannibalistic!

3. *Sexual deviance.* These probers also refused to participate in the natural rituals of mating. Normally, a male rat will pursue a female in heat until she escapes into her burrow. Then, the male will wait patiently and even perform a courtship dance directly outside her *door.* Finally, she emerges from the burrow and the mating takes place. In Calhoun's study, this ritual was adhered to by most of the sexually active males except the probers. They completely refused to wait and followed the female right into her burrow. Sometimes the nests inside the burrow contained young that had failed to survive and it was here that late in the study the probers turned cannibalistic.

   Another group of male rats was termed *the pansexuals* because they attempted to mate with any and all other rats indiscriminately. They sexually approached other males, juveniles, and females that were not in heat. This was a submissive group that was often attacked by the more dominant male rats, but did not fight for dominance.

4. *Reproductive abnormalities.* Rats have a natural instinct for nest building. In this study, small strips of paper were provided in unlimited quantities as nest material. The females are normally extremely active in the process of building nests as the time for giving birth approaches. They gather the material and pile it up so that it forms a cushion. Then they arrange the nest so that it has a small indentation in the middle to hold the young. However, the females in the behavioral sink gradually lost their ability (or inclination) to build adequate nests. At first they failed to form the indentation in the middle. Then, as time went on, they collected fewer and fewer strips of paper so that eventually the infants were born directly on the sawdust that covered the pen's floor.

The mother rats also lost their maternal ability to transport their young from one place to another if they felt the presence of danger. They would move some of the litter and forget the rest, or simply drop them onto the floor as they were moving them. Usually these infants were abandoned and died where they were dropped. They were then eaten by the adults. The infant mortality rate in the middle pens was extremely high, ranging from 80% to 96%.

In addition to these maternal deficits, the female rats in the middle pens, when in heat, were chased by large groups of males until they were finally unable to escape. These females experienced high rates of complications in pregnancy and delivery. By the end of the study, almost half of them had died.

DISCUSSION

You might expect that a logical extension of these findings would be to apply them to humans in high-density environments. However, for reasons to be discussed shortly, Calhoun did not draw any such conclusions. In fact, he discussed his findings very little—probably assuming, and logically so, that his results spoke volumes for themselves. He did comment on one clear result: that the natural social and survival behaviors of the rats were severely altered by the stresses associated with living in a high-population-density environment. In addition, he noted that through additional research, with improved methods and refined interpretation of the findings, his studies and others like them may contribute to our understanding of similar issues facing human beings.

SIGNIFICANCE OF FINDINGS

As with many of the studies in this book, one of the most important aspects of Calhoun's studies was that they sparked a great deal of related research on the effects on humans of high-density living. It would be impossible to examine this large body of research in detail here, but perhaps a few examples should be mentioned.

One environment where the equivalent of a behavioral sink might exist for humans is in extremely overcrowded prisons. A study funded by the National Institute of Justice examined prisons where inmates averaged only 50 square feet each (or an area about 7-by-7 feet), compared with less crowded prisons. It was found that in the crowded prisons there were significantly higher rates of mortality, homicide, suicide, illness, and disciplinary problems (McCain, Cox, & Paulus, 1980). Again, however, remember that there could be other factors besides crowding influencing these behaviors.

Another interesting finding has been that crowding produces negative effects on problem-solving abilities. One study placed people in small, extremely crowded rooms (only 3 square feet per person) or in larger, less crowded rooms. The subjects were asked to complete rather complex tasks, such as placing various shapes into various categories while listening to a story on which they were to be tested later. Those in the crowded conditions performed significantly worse than those who were not crowded (Evans, 1979).

Finally, what do you suppose happens to you physiologically in crowded circumstances? Research has determined that your blood pressure and heart rate increase. Along with those effects, you tend to feel that other

people are more hostile and that time seems to pass more slowly as density increases (Evans, 1979).

CRITICISMS

Calhoun's results with animals have been supported by later animal research (see Marsden, 1972). However, as has been mentioned before in this book, we must always be careful in applying animal research to humans. Just as substances that may be shown to cause illness in rats may not have the same effect on human physical health, environmental factors influencing rats' social behaviors may not be directly applicable to people. At best, animals can only represent certain aspects of humans. Sometimes animal research can be very useful and revealing and lead the way for more definitive research with people. At other times, it can be a dead end.

In 1975, a study was undertaken in New York City that attempted to replicate with people some of Calhoun's findings (Freedman, Heshka, & Levy, 1975). Data were collected for areas of varying population density on death rates, fertility rates (birth rates), aggressive behavior (court records), psychopathology (admissions to mental hospitals), and so on. When all the data were analyzed, no significant relationships were found between population density and any form of social pathology.

Nevertheless, Calhoun's work in the early 1960s focused a great deal of attention on the psychological and behavioral effects of crowding. This line of research, as it relates to humans, continues today.

RECENT APPLICATIONS

John Calhoun died on September 7, 1995, and left behind a legacy of insightful and historically meaningful research. The kinds of social problems discussed by Calhoun in his 1962 article are increasingly relevant to the human condition. Consequently, when scientists undertake research to better understand and intervene in such problems as aggression, infertility, mental illness, or various forms of social conflict, it is not unusual for them to make reference to Calhoun's research on crowding and behavioral pathology.

An article by Torrey and Yolken (1998) incorporated Calhoun's study in examining the association between growing up in crowded conditions and the development of schizophrenia and bipolar disorder (manic-depression). Many studies have found that people who are raised in high-density urban environments are at increased risk for these psychological disorders later in life. Numerous factors are present in crowded, urban settings that may account for such increased risks. However, the authors of this study hypothesized that it is not the increased density of living conditions in the neighborhood, but rather in the individual homes (more people occupying less space) that may explain the higher rates of mental illness later in life. Why? They contend that exposure to a larger number of infectious agents may account for this association.

Another interesting study citing Calhoun's work examined changes in animal behavior that accompany domestication (Price, 1999). This author contended that species of animals that are domesticated, that is, kept as pets, have undergone genetic and developmental changes over many generations that have altered their behaviors in ways that allow them to share a common living environment with humans. Basically, what Price is suggesting is that as wild animals have become domesticated over centuries, they have had to adapt to human settings that are very different from their original habitats. This usually includes living in peaceful harmony (most of the time, at least) with others of their own species, other animal species, and humans, usually in relatively crowded conditions. This is accomplished, the author contends, through the evolution of increased response thresholds, meaning it takes a lot more provocation for a domesticated animal to become territorial and aggressive. In other words, dogs, cats, and humans are all able to live together in a relatively small space without running away or tearing each other to pieces as would occur among nondomesticated animals in the wild.

In a cross-cultural study conducted in Iran, researchers applying Calhoun's ideas on fertility and crowding to humans made some remarkable discoveries (Paydarfar, 1996):

> The findings of the study clearly and consistently show that women living in single-family housing units have significantly higher actual and desired fertility rates than women living in multi-family housing units regardless of their major social, economic, and demographic differences. (Paydarfar, 1996, p. 214)

The author theorizes that a *population feedback effect* exists that serves to reduce fertility and, consequently, population growth, when density reaches very high levels. He goes on to propose a thought-provoking notion that in cities around the world where single-family houses are being torn down and replaced with high-density housing, the population density that is created will activate biological forces that will reduce fertility and, therefore, over generations, offset some of the negative effects of the overcrowding itself.

Evans, G. W. (1979). Behavioral and psychological consequences of crowding in humans. *Journal of Applied Social Psychology, 9,* 27–46.

Freedman, J. L., Heshka, S., & Levy, A. (1975). Population density and social pathology: Is there a relationship? *Journal of Experimental Social Psychology, 11,* 539–552.

Marsden, H. M. (1972). Crowding and animal behavior. In J. F. Wohlhill & D. H. Carson (Eds.), *Environment and the social sciences.* Washington, DC: American Psychological Association.

McCain, G., Cox, V. C., & Paulus, P. B. (1980). The relationship between illness, complaints, and degree of crowding in a prison environment. *Environment and Behavior, 8,* 283–290.

Paydarfar, A. (1996). Effects of multifamily housing on marital fertility in Iran: Population-policy implications. *Social Biology, 42*(3/4), 214–225.

Price, E. (1999). Behavioral development in animals undergoing domestication. *Applied Animal Behavior Research, 65*(3), 245–271.

Torrey, E., & Yolken, R. (1998). At issue: Is household crowding a risk factor for schizophrenia and bipolar disorder? *Schizophrenia Bulletin, 24*(3), 321–324.