

The Effect of Intellectual Disability on Children's Recall of an Event Across Different Question Types

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This research examined the performance of 80 children aged 9–12 years with either a mild and moderate intellectual disability when recalling an innocuous event that was staged in their school. The children actively participated in a 30-min magic show, which included 21 specific target items. The first interview (held 3 days after the magic show) provided false and true biasing information about these 21 items. The second interview (held the following day) was designed to elicit the children's recall of the target details using the least number of specific prompts possible. The children's performance was compared with that of 2 control groups; a group of mainstream children matched for mental age and a group of mainstream children matched for chronological age. Overall, this study showed that children with either a mild or moderate intellectual disability can provide accurate and highly specific event-related information. However, their recall is less complete and less clear in response to free-narrative prompts and less accurate in response to specific questions when compared to both the mainstream age-matched groups. The implications of the findings for legal professionals and researchers are discussed.

KEY WORDS: children; intellectual disability; eyewitness; testimony; investigative interviewing.

The current study examined the ability of children with intellectual disabilities to recall an event across a variety of different question types commonly used by investigative interviewers. The aim of this investigation was to better understand the abilities of these children in order to make recommendations about how their evidence can be improved. Children with intellectual disabilities constitute a high proportion of all child victims of abuse when considering the base rate of intellectual disability in the general population (Conway, 1994; Goldman, 1994; Morse, Sahler, & Friedman, 1970), however offenders who commit these crimes are rarely successfully prosecuted (Williams, 1995). Even in countries which enforce the mandatory reporting of child abuse, an estimated three out of every four cases of sexual abuse involving children

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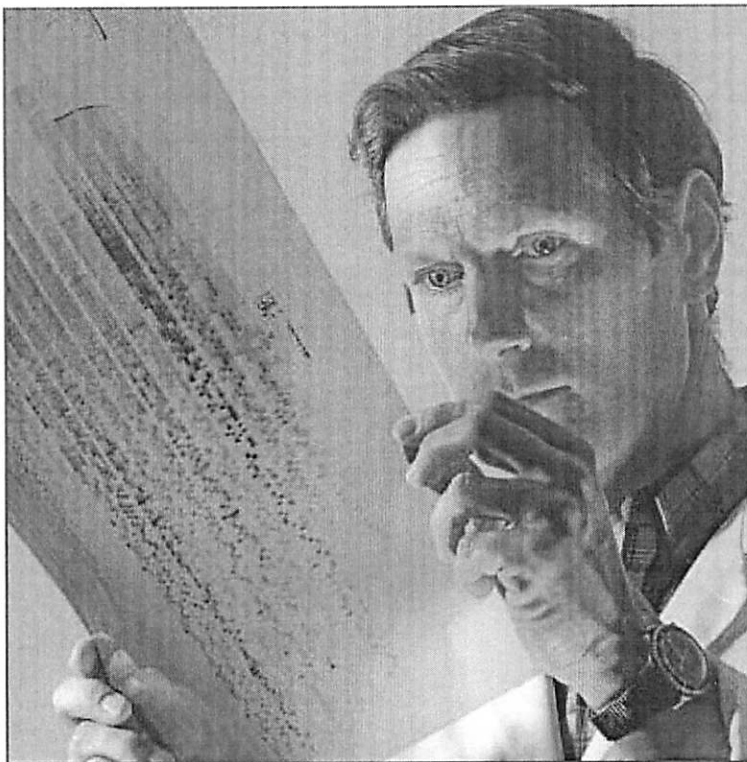
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8

Evidence-Based Practice and Pseudoscience

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key terms

Assumptions
Case-control study
Clinical trials
Double-blind approach
Empiricism

Evidence-based care
Junk science
Myths
Placebo
Pseudoscience
Quack
Quackery

Science
Scientific method
Secondary data analysis
Sham treatments
Uncontrolled case reports

learning objectives

On completion of the chapter, you should be able to accomplish the following:

- Define science and principles of the scientific method.
- Define evidence-based care.
- Identify the types of scientific evidence that constitute support for treatments and interventions.
- Differentiate pseudoscience, junk science, and quackery from science.
- Give examples of pseudoscience, junk science, and quackery and how they can have detrimental effects on the public.
- Explain the importance of evidence-based practice to nursing.

The nurse's primary commitment is to the health, safety, and welfare of people placed in his or her care, as well as to the public. The American Nurses Association (ANA) *Code of Ethics* directs nurses to "act to safeguard the client and the public when health care and safety are affected by incompetent, unethical, or illegal practice by any person" (ANA, 2001). It further instructs them to maintain competency in nursing.

Nursing is both an art and a science. Historically, the simple acts of nursing (eg, wound care, feeding clients) became known as the nursing arts (Nightingale, 1860). The science of nursing was rooted in an understanding of anatomy, physiology, and chemistry and the quest for knowledge based on the scientific method (Peplau, 1988). Many nursing scholars have debated and defined "art." For example, Carper's (1978) seminal article on nursing's patterns of knowing differentiated the art or esthetics of nursing from its science. Most recently, both Johnson (1994) and Wainwright (1999) conceptualized the art of nursing as a craft and an ability to grasp meaning, establish a connection with clients, determine a course of action, and skillfully perform nursing activities. Given this way of thinking, the art of nursing is less a separate phenomenon or aspect and more the means of carrying out the science of nursing in a skillful, knowledgeable, intelligent, and ethical manner.

As competent and moral practitioners, nurses are obligated to provide evidence-based care. **Evidence-based care** involves the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual clients. It is about integrating the best available evidence from research with clinical expertise to enhance decision making (Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996). It de-emphasizes intuition, case reports, and unsystematic clinical practice in clinical decision making (Users' Guides to Evidence-based Medicine, 1992). The scientific and ethical foundations for nursing practice imply that the interventions and services nurses offer to the public have a validated basis. Competent professional nurses are expected to make decisions based on research findings, to monitor and document the effects of interventions, and to use concrete, observable, and measurable terms and instruments to demonstrate outcomes.

The history of mental health has been distinguished by extraordinary gains in understanding human behavior as well as the functioning of the human brain. Unfortunately, it also has been marked by excess, scandal, and the proliferation of pseudoscience and quackery. The consuming public is subjected to extraordinary claims daily. Evaluation of these numerous claims requires sophisticated knowledge of research methods and professional practice and a solid understanding of the principles and limitations of the scientific method.

The purpose of this chapter is to differentiate evidence-based practices from non-evidence-based practices. Using concrete examples, it provides an overview of the potentially harmful effects of practices not grounded in scientifically validated principles. To help students evaluate and distinguish the mythical and fraudulent from genuine science, this chapter reviews what constitutes science and the scientific method. It also describes some recent pseudoscientific practices that

have had negative emotional and financial effects on families with mentally ill or mentally challenged loved ones.

SCIENCE

The words *science* and *research* sometimes intimidate or frighten students. Perhaps this is because they have not been encouraged in earlier school careers to develop a passion for the fascinating world of science. Science does not have to be intimidating if students understand that it primarily is an attitude toward problem solving. Science attempts to make sense out of natural phenomena by creating a relatively simple conceptual framework to account for observed facts. Scientists apply formal and informal reasoning methods to understand and predict the world in which humans live. A fundamental belief is that the natural world is ordered, understandable, and explainable through natural processes. Scientists greatly emphasize what can be observed, measured, and publicly verified. Scientific processes include controlled observation, experimentation, analysis, synthesis, prediction, and confirmation (TABLE 8.1).

Principles of the Scientific Method

The **scientific method** is a self-correcting system that relies on the application of logic and empirical processes to test theories against observable data. As such, it is the best method humans have of gaining objective knowledge, because this system ultimately is supported by empirical facts. The scientific method is not a strict set of rules. It is, however, defined by some very important principles. Three of the most important are the following:

1. Science uses methods of systematic empiricism.
2. Science aims for publicly verifiable knowledge.
3. Science seeks problems that are empirically solvable and that yield testable theories (Stanovich, 2001).

Systematic Empiricism

Empirics is a branch of philosophy that focuses on observing the physical world. **Empiricism** is a philosophical position that all knowledge and all ideas derive from experience. Scientists learn about the world by observing and examining it. But they do not do so randomly. They do so systematically. **Systematic empiricism means that scientific observations are structured in a way that the results of those observations reveal something about the world.** The knowledge derived from observations, however, can be no more than generalizations from particular instances and can never reach more than a very high degree of probability (Dawes, 2001; Stanovich, 2001).

Publically Verifiable Knowledge

The second principle involves the public nature of scientific knowledge. Knowledge gathered empirically does not exist solely in the mind of the scientist. In fact, it does not exist at all until the person disseminates it to the scientific commu-

TABLE 8.1

SCIENTIFIC PROCESSES**Controlled observations**

Observation basically means watching phenomena and taking note of changes (if any) through some means of measurement. Researchers make observations using direct and indirect methods. The controlled element involves conducting observation under specifically defined protocols.

Experimentation

Experimentation is the process of testing a hypothesis or prediction by carrying out data-gathering procedures under controlled conditions. Such conditions eliminate extraneous influences and facilitate close observations.

Analysis

Analysis of data is the process of determining whether data are reliable and whether they support a given prediction or hypothesis. Scientists analyze data in many ways, including using statistics, interpreting graphs, determining relationships between variables, comparing data with those obtained from other studies, and determining possible sources of experimental error.

Synthesis

Synthesis is the ability to put parts together to form a new whole.

Prediction

To test a hypothesis, a scientist usually makes a prediction that follows from the hypothesis. Predicting is stating in advance the results that one will obtain from testing a hypothesis. A prediction can take the form of an "if-then" statement. If the data collected show a prediction to be false, then they refute the hypothesis. If the data show a prediction to be true, then they support the hypothesis.

Confirmation

Once a researcher collects data through repeated observation and experimentation and reaches conclusions, he or she must publish these results for review by other scientists around the world. Then, other scientists must confirm or replicate the results of the experiment or study and reach similar findings before giving the results validity.

nity for critique, testing, and replicating of results. Knowledge or findings limited to one person or group and not verified can never have the status of scientific knowledge (Dawes, 2001). The person or group must present such findings to the scientific community in a way that others can achieve the same results. This process ensures that a particular finding is not the result of bias or error.

Empirically Solvable Problems and Testable Theories

The third principle is that science limits itself to empirically solvable and specifiable problems. This means that scientists deal with questions potentially answerable only through empirical techniques (Dawes, 2001; Stanovich, 2001). Questions such as, "Is the death penalty immoral?," "Does God exist?," "What is the meaning of this dream?," and "What is evil?" are not amenable to scientific study. They deal with matters outside science and are unanswerable by current scientific techniques.

Many aspects of mental health and illness and related care are unobservable. Some of the questions mentioned previously are typical of the kinds of issues troubling people with various disorders (eg, depression). Distinguishing what can be studied related to such questions is important. For example, although scientific methodology cannot prove the existence of God, researchers can study the effects of spiritual beliefs on recovery from mental illness (see Chap. 15). Although empir-

ical methods cannot answer the meaning of a dream, studies may be designed to report the physical and mental effects of discussing dreams with a therapist. Again, however, empirical techniques can be used to research such questions, and results can be disseminated and retested by others.

Types of Scientific Evidence

The highest level of scientific support for a treatment comes from experimental investigations. In them, researchers conduct a design in which they assign subjects randomly to various groups. One group receives the treatment under investigation. One group remains untreated for comparison. Other possible groups include one that receives a sham treatment or one that receives a placebo. The scientific community uses the term **sham treatments** to refer to counterfeit treatments or forms of therapy administered to a control group in a research study. **Placebos** are inert substances, such as a sugar pill, given to determine the efficacy of a medication. Both sham treatments and placebos are used in **clinical trials** that compare their effects against a legitimate treatment or active medication. By the rules of research design, a clinical trial is the only approach that enables the interpretation of significant differences between or among groups as indicating that the treatment itself has caused change.

Ideally, investigation of a treatment uses a **double-blind approach**, in which neither clients and their families, nor the

researcher recording results, know what treatment or intervention a subject is receiving. Nathan and Gorman (2002) designate these studies as type I studies. Their typology is elaborated more fully in TABLE 8.2.

Type II studies involve clinical trials in which an intervention is made, but some component of the type I study is missing. An example might be a trial in which researchers cannot maintain a double-blind approach. Type II studies are methodologically flawed compared with type I studies, but the flaw is not fatal. They provide valuable contributions to scientific knowledge despite being less rigorous than type I studies.

Type III studies have clear limitations, involve heavy bias, and generally are conducted as pilot research. Researchers carry them out to determine whether a treatment or intervention is worth pursuing with a more extensive or rigorous design. An example might involve a **case-control study** in which the researcher uses specific criteria to identify participants and then interviews them retrospectively. Case-control studies can provide extensive naturalistic data, but findings are clearly exploratory and not definitive.

Type IV studies involve secondary data analysis, which can be quite helpful, particularly when sophisticated. Secondary data analysis means that the analyst was not responsible for collecting data or that he or she collected the data for a different reason than that currently being used. This method can be a creative way to use existing data in new forms. Conversely, it can be used irresponsibly. For example, an analyst might manipulate and transform data in a way that lessens the validity of the original research.

Type V studies entail reviews of literature without secondary data analysis. They help consolidate research on a certain subject but are subject to the biases and opinions of the person reviewing the literature.

Type VI studies involve uncontrolled case reports and are of questionable value. They may be of interest in terms of discussing unusual or extreme situations; however, they are not an appropriate basis for developing interventions. Moreover, they are subject to the bias of the person reporting them and are often simply “hearsay.”

The writers of this text have attempted to refer to type I or type II studies when referencing interventions. In psychiatric-mental health nursing, not all interventions have an empirical basis. Some interventions are recommended on the basis of the expert consensus of scholars from various professional organizations. Some interventions are based on tradition. The evidence-based movement represents an attempt to bring more rigor and science to those interventions offered to clients and their families.



Checkpoint Questions

1. What three principles are most important to the scientific method?
2. What is meant by a double-blind approach?
3. Which type of scientific study typically is used as pilot research?

TABLE 8.2

TYPOLOGY OF STUDIES

Type I

- Most rigorous
- Prospective in nature
- Involve comparison groups with random assignment of subjects, blinded assessments, clear presentation of inclusion and exclusion criteria, state-of-the-art diagnostic methods, adequate sample size for statistical power, and clearly described statistical methods

Type II

- Clinical trial of an intervention or treatment
- Less rigorous than type I, in that some aspect of a type I study is missing (eg, treatment is not randomized, double-blinding is impossible)
- Important but not definitive

Type III

- Methodologically limited
- Include open treatment studies aimed at collecting pilot data and subject to observer bias, as well as retrospective studies because they are subject to recall error

Type IV

- Reviews of the literature with secondary data analysis of original studies
- Although useful, tend to include only positive data and are thus flawed by the omission of negative outcome data

Type V

- Reviews of the literature without secondary data analysis
- Helpful because they give an overview of literature, but are subject to the writers' opinions and sometimes highly biased

Type VI

- Various reports with marginal value (eg, case studies, essays, opinion papers)

PSEUDOSCIENCE

Pseudoscience is the term used to represent those therapies and treatments for physical or mental health problems used without empirical or theoretical support. Such practices frequently are based on assumptions at odds with paradigms generally accepted by professionals in related areas. They may lead to myths and distortions that influence mainstream practices. Frequently, practitioners of pseudoscientific methods describe their approaches as “unconventional” or “unorthodox.” Some sincerely believe in the efficacy and appropriateness of their therapies. Others are concerned with enriching themselves at the expense of trusting clients (Wynn & Wiggins, 2001).

Sometimes, clients or families have become disenchanted with professionally approved treatments and seek pseudoscientific practices and therapies. In other cases, people habitually reject an “establishment” view and readily accept theories that run counter to common professional practice. Pseudoscientific therapies may involve underground or unlicensed activities; however, many practitioners function openly and market themselves as mainstream “therapists.” Some come to professional and public awareness as problematic only after excesses and abuses result in legal or criminal proceedings. Such was the case in the recent death of Candace Newmaker, discussed later in this chapter.

By their sheer numbers, nurses are highly visible professionals with daily contact with the public. As such, nurses have an excellent opportunity to protect the public from pseudoscientific practices and therapies. Such practices share several common characteristics that distinguish them from scientifically approved healthcare practices.

Pseudoscience Versus Science

Perhaps the most important characteristic that sets pseudoscientific practices apart from genuine scientific practices is the lack of concern with valid evidence (Dawes, 2001; Wynn & Wiggins, 2001). Practitioners of pseudoscience rely on eyewitness testimonies and personal anecdotes rather than well-controlled and publicly verifiable studies. Conversely, science convinces on the basis of evidence or logical argumentation.

Pseudoscientists operate from a set of assumptions, or assertions taken for granted or supposed that may be either explicit or hidden. Assumptions are beliefs accepted as true and viewed as representative of reality (Bandman & Bandman, 1988; Trice & Beyer, 1993). They also can misrepresent reality and perpetuate the status quo. For example, an erroneous assumption in psychiatric nursing is that physical restraint of clients is a therapeutic tool in the management of the milieu. In reality, researchers have found that restraint yields no demonstrable therapeutic effects on aggressive clients and indeed is associated with decreased positive behaviors.

Scientists make underlying assumptions explicit before presenting evidence for their claims. Pseudoscientists do not make assumptions explicit or encourage examination of them by adherents or outside experts for soundness or logic (Dawes, 2001; Wynn & Wiggins, 2001).

Myths

Within the context of this discussion, **myths** are complete inventions, often deeply rooted in a set of cultural beliefs and difficult to dispel. Rather than measuring actual outcomes, practitioners of myths assess performance in terms of behaviors prescribed by the myths themselves (Wynn & Wiggins, 2001). They usually do not question the myths unless they have new myths to replace them. Without myths to embrace, they would have little basis for believing in their own efficacy.

An example involves the concept of *self-esteem*. For nearly two generations in the United States, self-esteem has been a gospel for personal growth. So much of what ails society—smoking, drinking, drugging, stealing, lying, cheating, overeating, and underachieving—has been linked to problems with self-esteem. Proponents of high self-esteem encourage the idea that “we are who we think we are.” According to this idea, if you can improve individual self-esteem, you can improve individual outcomes.

Scientific research on self-esteem, however, questions these beliefs. Roy Baumeister, professor of psychology at Florida State University, and his colleagues conducted an extensive review of research on self-esteem. They noted society’s belief that self-esteem rises when a person achieves success and declines with corresponding failures. “This pervasive correlation may well strengthen the impression that one’s level of self-esteem is not just the outcome, but indeed the cause, of life’s major successes and failures” (Baumeister, Heatherton, & Tice, 1993, p. 150). Their survey found that pervasive efforts to boost student self-esteem did not improve academic performance and sometimes hurt it. Their findings indicate that high self-esteem does not prevent children from smoking, drinking, taking drugs, or engaging in early sex. Indeed, their study supports that high self-esteem fosters experimentation, which may increase early sexual activity or drinking. According to their research, effects of self-esteem, in general, are negligible. (One important exception is that high self-esteem reduces the chances of bulimia in girls and women.)

Nursing texts often promote building self-esteem as a nursing intervention for children with conduct disorder. Many mental health textbooks state that improving self-esteem is a goal of interventions (Baumeister, Heatherton, & Tice, 1993; Dawes, 1994, 2001; Stanovich, 2001). A common assumption is that low self-esteem underlies aggressive behavior or violence. Actually, evidence negates this idea. Some studies have shown an association between violent aggression and inflated, not low, self-esteem (Baumeister, 2001; Baumeister, Heatherton, & Tice, 1993; Dawes, 1994, 2001; Scheff, Retzinger, & Ryan, 1989; Stanovich, 2001). This finding has held true across a broad spectrum of behaviors, from playground bullying to domestic abuse and rape. Violent perpetrators typically have exaggerated self-esteem and are more aggressive than others (Baumeister, Smart, & Boden, 1996).

Such findings do not mean that healthcare providers should engage in interventions that lower self-esteem or positive self-regard for all clients. They call into question ideas and beliefs

that have resulted more from conventional wisdom than from collected scientific evidence. They also identify the difficulties inherent in dealing with such abstractions as “self-esteem” in the first place. What exactly is self-esteem? Does it mean something different to each person? How have various studies measured it? What findings can be relied upon if operational definitions for this concept differ according to the study, research team, or both?

Quackery

The dictionary definition of a **quack** is “a pretender to medical skill; a charlatan” and “one who talks pretentiously without sound knowledge of the subject discussed” (Webster’s College Dictionary, 1981). **Quackery** entails the use of methods not scientifically accepted and involves the practice of fraudulent medicine, usually to make money or for ego gratification and power. Those who practice quackery are called quacks and give false hope to people who are genuinely suffering (Dawes, 2001). Sometimes promoters of quackery engage in fraud and deliberate deception. In many cases, however, they sincerely believe in what they are doing and may be unwitting victims who share misinformation and personal anecdotes with others (Barrett & Jarvis, 1993).

Quackery and misleading advertising are frequent companions. For example, some quacks attribute nonscientific therapeutic effects and outcomes to herbs, vitamins, minerals, and other food supplements. Quackery also may involve labeling something as harmful (eg, food additives or preservatives) without scientific evidence (Barrett & Jarvis, 1993). Practitioners actually may harm vulnerable clients by causing them to postpone legitimate care. On the other hand, they may not cause direct harm but lead clients and families to spend financial resources needlessly. Some treatments may involve legitimate therapies or medications. For example, vitamin B₁₂ has been shown useful in the treatment of pernicious anemia. It has not been shown effective, however, in the treatment of fatigue (Barrett & Jarvis, 1993). Regardless of the particular circumstances, quackery causes suffering, provides false hope, and misleads people into spending money and time on ineffective, and possibly dangerous, “treatments.”

Distinguishing unproven treatment methods from quackery is important. Unproven treatments consistent with established scientific concepts are considered experimental; researchers studying them are engaged in properly designed studies. Treatments promoted without established scientific methodology, replication, and peer review are not experimental (Barrett & Jarvis, 1993; Whitlock, 2001). They are either unvalidated or unproven. In other words, “the jury is still out.” They may actually become legitimized through empirical means.

Quacks engage in struggles with legitimate health care providers, mainstream scientists, government regulatory agencies, and consumer protection groups. Despite the strength of scientific opposition, quackery persists as a problem. Unfortunately, quacks often target illnesses that are poorly understood by the medical community, difficult to treat, ter-

minal, or characterized by a fluctuating course. They prey on the frustration of those who despair of their efforts to achieve relief through the services of the legitimate medical community (Whitlock, 2001).

Quacks and pseudoscientists use several strategies to defend themselves against the medical establishment. They may point to instances of persecution of pioneers such as Pasteur or Galileo. They may accuse such authorities as the American Medical Association or U.S. Food and Drug Administration (FDA) of engaging in a conspiracy to suppress their treatment (Barrett & Jarvis, 1993; Whitlock, 2001). They also may accuse these organizations and agencies of being “bought off” by insurers or drug companies. They may point out that medical science does not have all the answers. Medical science, however, does not make such a claim. Rather, its claim is that empirically supported interventions have been subject to rigorous study, peer review, and public scrutiny.

Most recently, several quacks have defended themselves using concepts from postmodernism. The movement is influenced by the writings of philosophers (eg, Jean Baudrillard, Jacques Lacan) who use (and sometimes misuse) terminology and concepts from mathematics and physics (Sokol & Bricmont, 1999). Postmodernists have applied such ideas and concepts as Gödel’s theorems, relativity, quantum mechanics (particularly the uncertainty principle), chaos theory, and catastrophe theory to literature and psychoanalysis.

The postmodern movement has infiltrated health care and nursing. This approach encourages people to believe that healthcare advice based on scientific research is of no more value than any other healthcare advice. It is not uncommon to read in some nursing journals discussions of the existence of energy fields or applications of Einstein’s equations to ethical relativity. Some authors borrow terms from theoretical physics without regard for what those terms actually mean (Sokol & Bricmont, 1999). For example, the terms “energy” and “field” both have precise (not metaphorical) meanings in physics; but “energy field” is meaningless in physics (Raskin, 2000). Many readers have little understanding of the scientific theory being invoked or the philosophical implications of what is being said. They may assume that if an author has a PhD, he or she should be believed without question.

Patterning

Families usually are motivated to obtain the best and most effective services available for their relatives with severe disabilities. Staff members usually want to provide their best services and training. Both recipients and providers are vulnerable to the promises offered by unconventional therapeutic techniques, especially when respected authorities misrepresent or misinterpret therapeutic effects. Probably the best-known quackery treatment precipitously and broadly adopted within the field of developmental disabilities was “patterning,” also referred to as the Doman-Delacato technique (Delacato, 1963; Doman, Spitz, Zucman, Delacato, & Doman, 1960). Doman and Delacato asserted that mental retardation represents a person’s failure to develop through proper “phyloge-

netic" (evolutionary) stages. Their modality of patterning is a time-consuming treatment involving passive physical manipulation of the limbs and body to stimulate proper development of the phylogenetic stages. According to patterning, the person must master each stage before he or she can progress to the next. The exercises intend to impose the proper "pattern" on the central nervous system. When first used, the intensity of the procedures requires several volunteers to work daily or weekly conducting physical manipulations on each subject.

In 1982, the American Academy of Pediatrics issued a position statement asserting that "patterning" has no special merit, that its proponents' claims are unproven, and that the demands on families are so great that in some cases their financial resources become severely depleted, leading to compromised parental and sibling relationships (available at www.aap.org/policy/re9919.html). Nevertheless, patterning services are still available in some areas, despite the lack of credible supporting scientific research. Indeed, ample basic science supports the contrary position that the person's interactive participation and contact with contingencies of reinforcement are essential to establish the neural substrate of organized behavior during development.

Facilitated Communication

Another example of quackery was facilitated communication (FC). FC is a method, or group of methods, that assists a nonverbal person in typing letters, words, phrases, or sentences using a typewriter, computer keyboard, or alphabet facsimile. Developed by a special education teacher in Australia during the 1970s, FC was introduced in the United States in 1990. It involves a graduated manual prompting procedure, with the intent of supporting a person's hand sufficiently to make it more feasible to strike the keys he or she wishes, without influencing selection (Mulick, Jacobson, & Kobe, 1993). The procedure has been claimed to produce unexpected literacy (Biklen, 1990, 1992a, 1992b) in nonverbal people with a life-long and unambiguous history of autism, moderate to profound mental retardation, or both. Without scientific evidence of its validity and effectiveness (Federal Trade Commission [FTC], 1995a, 1995b), and despite objective research findings identifying widespread, systematic facilitator control of typed content, FC became widespread in special education and adult services for people with developmental disabilities.

FC continues to be practiced, with many supporting Websites. According to the American Psychological Association, however, peer-reviewed, scientifically based studies found that therapists who provided FC directed or systematically determined the typed language output (represented through computers, letter boards, and so forth) attributed to clients. As a result, the American Psychological Association adopted a resolution in 1994 ("Resolution on Facilitated Communication by the American Psychological Association") stating that FC "is a controversial and unproved communicative procedure with no scientifically demonstrated support for its efficacy" (Jacobson, Mulick, & Schwartz, 1995, p. 760).

Although FC is not physically damaging, it causes harm by fostering hope in already stressed families. It also uses money that could be spent for treatments with actual supporting evidence.

The Dangers of "Junk Science"

Junk science is defined as faulty data collection and analysis used to further a special agenda. The media may use junk science for sensational headlines and programming to attract viewers and advertisers. Some members of the media use junk science to advance their or their employers' social and political agendas. In some cases, problems with junk science have wreaked havoc in the field of healthcare. Two recent examples are the controversies involving multiple personality disorder and the use of aspartame.

Multiple Personality Disorder

Multiple personality disorder (MPD), known in the *Diagnostic and Statistical Manual of Mental Disorders* (4th edition, text revision; *DSM-IV-TR*) (American Psychiatric Association [APA], 2000) as dissociative identity disorder (DID), is a legitimate, albeit rare, diagnostic category that has prompted much controversy (see Chap. 25). During the 1980s and 1990s, thousands of people received this diagnosis indiscriminately. Programs specializing in treatment of DID proliferated all over the United States.

This diagnosis arose from relative obscurity with the publication of the 1954 case study and subsequent film *The Three Faces of Eve* (Thigpen & Cleckley, 1957). A second book, *Sybil* (Schrieber, 1973), presented as a semi-documentary, described a woman believed to have 16 separate personalities. The book became a best-seller and television movie. Both books and movies made major contributions to the public's perception and acceptance of MPD. Despite a lack of evidence supporting the belief that abuse is a necessary or sufficient contributor to MPD, conventional wisdom is that early childhood abuse can lead to multiple personalities. This perception has persisted despite evidence that the therapist in the *Sybil* case induced the personalities (Acocella, 1999). After publication of *Sybil*, reports of MPD rose from 50 to more than 20,000 (Piper, 1997).

Several social forces during the 1980s contributed to a proliferation of interest in and publicity for MPD, including the rise of a huge for-profit psychiatric hospital industry, talk shows featuring victims of sexual abuse, the emergence of the child advocacy movement, and widespread allegations of satanic ritual abuse (SRA) of children. SRA is the name given to the allegedly systematic abuse of children by well-organized intergenerational satanic cults whose members sexually molest, torture, and murder children across the United States. In the 1980s a panic ensued regarding SRA, with allegations publicized widely on radio and television talk shows.

Many therapists began to uncover "repressed memories" of murderous satanic cults that subjected people to unspeakable

horrors. Some therapists claimed to uncover dozens and even hundreds of “alters” (personalities) in clients. One physician uncovered 4500 alters and described them as flying over the client’s hospital by means of astral projection (Acocella, 1999). Families were torn apart by claims of unsubstantiated abuse. Clients were rendered financially bankrupt by “treatment” that included sessions lasting up to 8 hours and costing up to \$1560 per day (McDonald, 1994).

A study funded by the National Center on Child Abuse and Neglect and conducted by researchers at the University of California at Davis and University of Illinois at Chicago found allegations of SRA to be without merit. Investigating more than 12,000 accusations and surveying more than 11,000 psychiatric, social service, and law enforcement personnel, researchers found no unequivocal evidence of a single case of SRA (Goodman, Qin, Bottoms, & Shaver, 1994). An independent study conducted by Kenneth Lanning (1992), a Supervisory Special Agent at the FBI Academy who has been studying SRA since 1981, came to the same conclusion.

It is difficult to say when or why reason reasserted itself. In addition to outlandish claims, allegations of abuse by therapists, and several high-profile scandals exposed by courageous nurses (McDonald, 1994), empirical studies on the nature of memory were published and disseminated in the professional literature (Loftus, 1992; Loftus & Loftus, 1994; Schacter, 1996). In the wake of these revelations and criticism, former clients and families began to file huge malpractice suits, with some settlements running into millions of dollars (Pendergast, 1996). Clients began to recant allegations. Articles in major publications were critical of the recovered memory movement, and talk show hosts apologized for their contributions to the hysteria (Rivera, 1995).

Aspartame

Another case involves critics of the non-nutritive sweetener aspartame. As of this writing, more than 91,000 Websites mention aspartame, which is found in many soft drinks, yogurts, and dietetic foods. Many of these sites allege aspartame to cause various illnesses, including multiple sclerosis, systemic lupus erythematosus, Gulf War syndrome, chronic fatigue syndrome, brain tumors, Alzheimer’s disease, and diabetes mellitus. Virtually all the information offered is anecdotal, from anonymous sources, and scientifically implausible. The anti-aspartame campaign purports to explain illnesses that are either prominent in the public eye or for which causes remain elusive.

More than 400 citations are found in the Medline data from 1966 to 2003 under the subject heading “aspartame.” No citation purports to have evidence that aspartame causes, worsens, or contributes to multiple sclerosis, systemic lupus erythematosus, or fibromyalgia. Repeated studies (rats, children, adults) in peer-reviewed journals show no adverse effects of aspartame on weight; body temperature; cognitive, behavioral, neuropsychiatric, or neurophysiologic function; or hormones or enzymes. They also have not identified aspartame as a cause of brain tumors or other forms of cancer and birth

defects. There is no evidence that aspartame worsens diabetes or causes depression. Several small reports have shown that some clients with migraines may have worsened headaches with the use of aspartame. Other studies show no connection in clients who have claimed to have aspartame-related headaches (Park, 2000).

The Dangers of Pseudoscientific Interventions: The Case of Attachment Therapy

Both the *DSM-IV-TR* and the International Classification of Diseases (ICD-10) from the World Health Organization (WHO) describe reactive attachment disorder (RAD) (APA, 2000; WHO, 1992) as comprising two clinical patterns: an emotionally withdrawn, unresponsive pattern in which absence of attachment behaviors predominates (inhibited subtype), and another pattern in which attachment behaviors are evident but directed nonselectively or indiscriminately, even at relative or complete strangers (disinhibited subtype). Each pattern has been described both in children in institutions (Tizard & Hodges, 1978; Tizard & Rees, 1975) and in maltreated children (Albus & Dozier, 1999; Boris, Zeanah, Larrieu, Scheeringa, & Heller, 1998; Boris et al., 2000; Zeanah, 2000; Zeanah, Boris, Bakshi, & Lieberman, 2000; Zeanah et al., 2001). In recent years, diagnosis of RAD has increased. Disagreement on this subject is considerable, particularly in terms of assessments and interventions.

Children with a history of abuse or severe neglect are particularly likely to receive a diagnosis of RAD because associated behavior problems often are presumed to stem from their maladaptive relationships with abusive caregivers. Many children diagnosed with RAD, however, have behavior problems that clearly extend beyond the *DSM-IV-TR* criteria. Perhaps the most worrisome consequence of the RAD diagnosis is the emergence of “treatments” that lack a sound theoretical basis or empirical support, and may potentially be traumatizing and dangerous (Hanson & Spratt, 2000).

One example is attachment therapy, a fringe psychotherapy that has been neither validated nor accepted by the scientific community (Kennedy, Mercer, Mohr, & Huffine, 2002). Attachment therapy has many variations, but most involve subjecting the client to physical confrontation and restraint to release repressed anger over abandonment. The process is repeated until the child is exhausted and emotionally reduced to an “infantile” state. Then, parents cradle, rock, and bottle-feed the child, implementing an “attachment” (Mercer, 2001; Mercer, Sarner, & Rosa, 2003).

A search of the Medline database, the largest international healthcare database, reveals no research articles on attachment therapy in peer-reviewed journals, and only 33 articles on RAD. Internet searches, however, yield thousands of sites promoting attachment therapy and claims by practitioners to have research data showing its efficacy. Although data on attachment theory abound, attachment and holding therapies emanate in no logical way from attachment theory or research (Dozier, 2003).

The potential for tragedy is illustrated dramatically by the case of Candace Newmaker in 2000. Candace's adoptive mother felt that Candace suffered from an emotional disorder that prevented loving attachment. The mother decided to seek attachment therapy. While the mother watched from another room, several "therapists" forcibly held Candace beneath a blanket for 11 hours, killing her by suffocation. Despite its dangers, legislators have been unsuccessful in banning attachment therapy (Kennedy et al., 2002).



Checkpoint Questions

4. On what do practitioners of pseudoscience rely?
5. What is the American Psychological Association's viewpoint on facilitated communication?
6. What term denotes faulty data collection and analysis used to further a special agenda?

IMPLICATIONS FOR PROFESSIONAL NURSES

The vulnerability of consumers invokes questions about the nursing profession's ethical obligation to them. Professional nurses, because of their specialized knowledge, are presumed to have an ability to discriminate fact from fiction, science from pseudoscience, and fraudulent healthcare claims from legitimate ones. Indeed, this is one reason that schools of nursing require students to take a course in research.

Advocating and educating clients and their families require nurses to have some sophistication in evaluating claims against information in professional sources (Client and Family Education 8.1). To make use of their education, nurses must be aware of existing controversies over treatments. They also should be familiar with professional sources such as books and journals and maintain a thorough acquaintance with research standards in their particular field. Professional nurses have numerous ways to advocate and educate themselves and the public.

Client and Family Education 8.1

COMBATING QUACKERY AND FRAUDULENT CLAIMS

The nurse teaches and assists the client and family as follows:

- Be suspicious of products that claim to cure a wide range of unrelated diseases, particularly serious diseases, such as cancer and diabetes. No product can treat every disease and condition. For many serious diseases, there are no cures, only therapies to help manage them.
- Personal testimonies can be fraudulent and difficult to prove. Testimonials are personal case histories that have been passed on from person to person. Testimonials are the weakest form of scientific validity, often amounting to compounded hearsay.
- Be wary of talk that suggests a product can bring quick relief or provide a quick cure, especially if the disease or condition is serious.
- Do not be fooled by the term "natural." It's often used in health fraud as an attention-grabber; it suggests a product is safer than conventional treatments.
- Beware of remedies from companies or practitioners that make paranoid claims suggesting that legitimate health care providers and manufacturers are in cahoots to suppress unorthodox products because they threaten their financial standing.
- Beware of health practitioners who suggest a nonscientific or little-known therapy and then attempt to dissuade you from getting a second opinion.
- Check with the Better Business Bureau or local attorneys general's offices to see whether other consumers have lodged complaints about a product or a product's marketer.
- Check with the appropriate health professional group—for example, the APA, the American Psychiatric Nurses Association, the National Alliance for the Mentally Ill, and government Websites (eg, NIMH.gov). Many of these groups have local chapters that can provide various resource materials about diseases. Government Websites have information on the latest research available about treatments.
- Contact a nearby FDA office. Look for the number and address in the blue pages of the phone book under U.S. Government, Health and Human Services, or go to www.fda.gov/ora/fed_state/dfs_r_activities/dfs_r_pas.html. The FDA records whether it has taken action against a product or its marketer.

The Internet is one method for distributing quality information to many people. Unfortunately, it also has been used to post false claims, to mislead, and to steer people away from legitimate information. Many people get healthcare information from the Internet. When information on Websites is deceptive and untruthful, consumers are at a risk. Sites touting unproven remedies for serious diseases like cancer, mental illnesses, heart disease, HIV/AIDS, and arthritis are exploding (excerpt of the 8th Health on the Net Foundation [HON] Survey of Health and Medical Internet Users, available at www.hon.ch/Survey/8th_HON_results.html).

Think About It 8.1

The parents of a young child report that their child seems distant and withdrawn and is experiencing behavior problems. They state, "When we try to hug or comfort him, he just stares at the walls. We read something on the Internet about attachment therapy. Maybe we should try it?" How would the nurse respond?

The FDA, FTC, and Health Canada have joined together to prosecute unscrupulous marketers who use the Internet to prey on the sickest and most vulnerable consumers. The FTC is targeting false and unsubstantiated Internet health claims through Operation Cure All, a law enforcement and consumer education campaign. Their Website (www.ftc.gov/bcp/conline/edcams/cureall/index.html) offers information on how to recognize health fraud and buying healthcare products on the Internet. Both the FDA and FTC encourage people to report suspicious health claims at their Websites: www.fda.gov/oc/buyonline/buyonlineform.htm and www.ftc.gov.

In addition, some Websites are devoted to exposing quackery and pseudoscience. The most extensive is www.quackwatch.com. Quackwatch's mission includes investigating questionable claims, distributing reliable publications, reporting illegal marketing, generating consumer protection lawsuits, improving the quality of health information on the Internet, and attacking misleading advertising on the Internet. On Quackwatch, Dr. Stephen Barrett and volunteer experts from medicine, nursing, psychology, and other fields investigate and publish the latest research on various treatments that are either worthless or actually harmful. Another Website, the National Council Against Health Fraud (www.ncahf.org) is a nonprofit agency that focuses on health misinformation, fraud, and quackery as public health problems. Both Quackwatch and NCAHF have multiple links to other Websites and contain up-to-date information that discusses and distinguishes between legitimate and nonlegitimate health claims.

REFLECTION & CRITICAL THINKING

1. Quack therapies cost the U.S. public millions of dollars each year, in addition to bringing stress to people hoping for miracle cures. What are your thoughts as

to what nurses individually and collectively can do to prevent quackery?

2. Many people depend on unsubstantiated therapies. Why do you think that these therapies sometimes seem to "work?"
3. In the past 10 years, the U.S. public has embraced complementary and alternative medicines (CAM; see Chap. 16). What can nurses do to help distinguish legitimate CAM interventions from fraudulent or unsubstantiated ones?

CHAPTER SUMMARY

- Despite the advanced state of mental health services, clients and their families continue to turn to dubious practices.
- The history of mental health services is full of excess and scandal, but it is also one of extraordinary gains in understanding the human brain and behavior.
- Nurses have individual and collective ethical obligations to protect the public from such excesses and educate themselves and others about the differences between legitimate treatments and interventions grounded in research and treatments and interventions grounded in flummery.

REVIEW QUESTIONS

1. When explaining evidence-based care to a group of nursing students, which of the following concepts would the instructor address?
 - a. Increased emphasis on intuition
 - b. Integration of research findings with clinical expertise
 - c. Use of pseudoscientific practices and therapies
 - d. Increased reliance on assumptions
2. After teaching a group of students about the scientific process, the instructor determines that the teaching has been successful when the students describe synthesis as which of the following?
 - a. Watching something carefully and noting events
 - b. Testing a hypothesis or prediction
 - c. Determining whether data is reliable and supportive
 - d. Putting the information together to form a new whole
3. A nurse is participating in a research study that involves a review of the literature and analysis of the data to be used in a new form. The nurse is involved in which type of study?
 - a. Type I
 - b. Type II
 - c. Type III
 - d. Type IV

4. When conducting an experimental research study investigating the effects of a medication, one group receives the medication, a second group receives no medication, and a third group receives a capsule containing a sugar solution. The nurse identifies the sugar solution capsule as:
 - a. Sham treatment
 - b. Placebo
 - c. Empirics
 - d. Junk science
5. Which of the following statements would be appropriate to include in a teaching plan for clients and their families about quackery? Select all that apply.
 - a. Fraudulent medicine is typically involved.
 - b. Most practitioners sincerely believe in what they are doing.
 - c. Advertising is frequently accurate in its description of the practice.
 - d. Treatment may involve legitimate therapies or techniques.
 - e. Difficult-to-treat illnesses are rarely addressed or involved.

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PART I

**Expanding Roles
and Emerging Areas
of Practice**