

Chapter 2

History of Screening Practices, Mental Health Assessment, and Classification in the USA

General Principles of Screening

In 1951, the Commission on Chronic Illness Conference on Preventive Aspects of Chronic Disease defined screening as “the presumptive identification of unrecognized disease or defect by the application of tests, examinations, or other procedures which can be applied rapidly. Screening tests sort out apparently well persons who probably have a disease from those who probably do not. A screening test is not intended to be diagnostic. Persons with positive or suspicious findings must be referred to their physicians for diagnosis and necessary treatment” (Wilson and Jungner 1968, p. 11). Wilson and Jungner explained that “early detection aims at discovering and curing conditions which have already produced pathological change but which have not so far reached a stage at which medical aid is sought spontaneously.” Thus, the objective of medical screening is not to diagnose, but to identify possible problems earlier than would naturally occur so as to increase the probability of curing the condition through early treatment and intervention.

A second purpose of screening, especially in less developed countries, is to control the spread of communicable diseases. According to Morabia and Zhang (2004), screening programs became possible when four conditions were met: the availability of simple, valid, and acceptable forms of screening tests; the discovery of effective treatments; the establishment of a theory of screening; and wide access to health care. The importance of the development of valid screening instruments as well as proven effective treatments prior to implementing a screening program cannot be overemphasized (Moyer et al. 2008). Screening is only worth the effort if early detection and treatment leads to better outcomes than would be expected without earlier detection.

In 1968, the World Health Organization (WHO; Wilson and Jungner 1968) provided guidelines for effective health screening:

1. The condition should be an important health problem that carries with it notable morbidity and mortality.
2. There should be an accepted treatment for patients with recognized disease.
3. Facilities for diagnosis and treatment should be available.

4. There should be a recognizable latent or early symptomatic stage.
5. There should be a suitable test or examination.
6. The test should be acceptable to the population.
7. The natural history of the condition, including development from latent to declared disease, should be adequately understood.
8. There should be an agreed policy on whom to treat as patients.
9. The cost of finding, diagnosing, and treating patients should be economically balanced in relation to the anticipated overall expenditure on medical care.
10. Case-finding should be a continuing process and not a “once and for all” project.

These guidelines have served to frame the process of mental health screening. Generally, it appears that mental health disorders meet the criteria that would facilitate screening. Mental health disorders are important health problems with known morbidity, mortality, and costs to society (Campaign for Mental Health Reform 2005; United States Public Health Service 2000). Evidence-based medications as well as psychosocial interventions exist that have been found to effectively treat most mental health disorders (New Freedom Commission on Mental Health 2003). A number of effective or promising treatments exist for many mental disorders in children, including cognitive behavioral therapy and selective serotonin reuptake inhibitors for depression (Kaslow and Thompson 1998), parent training and multisystemic therapy for conduct disorder (Brestan and Eyberg 1998), and psychostimulants and behavioral training of teachers for attention-deficit/hyperactivity disorder (ADHD; Pelham et al. 1998). Research has also shown that identifying and treating children early, before their emotional and behavioral problems are diagnosable, can minimize the long-term detriment of mental disorders as well as reduce overall health-care burden and costs (Aos et al. 2004; Campaign for Mental Health Reform 2005). Evidence supporting the use of screening programs with mental health disorders is presented throughout this text; however, it is clear that based on the information provided thus far mental health disorders far surpass the minimum criteria necessary for screening programs to potentially succeed in facilitating early intervention and prevention efforts.

History of Screening Practices in the USA

Screening in the Army

The history of screening practices in the USA can be traced back to psychological roots in the late nineteenth and early twentieth centuries. One of the oldest screening programs recorded was employed by the Division of Psychology within the Medical Department of the US Army during World War I. In 1917, the army began administering mental tests to officers, new conscripts, and enlisted men “to help to eliminate from the army at the earliest possible moment those recruits whose

defective intelligence would make them a menace to the military organization” (from Morabia and Zhang, p. 464). Those whose test results indicated that they were at risk for difficulties were referred for more detailed individual psychological examinations. In 1918, Robert Woodworth published the Woodworth Personal Data Sheet (Woodworth 1918) as part of a national effort to screen potential soldiers for psychiatric disorders before allowing them into the US Army. This instrument allowed for the screening of large numbers of recruits quickly without the need for trained interviewers (Kleinmuntz 1967).

During World War II, a standardized paper-and-pencil test, later named the neuropsychiatric screening adjunct (NSA) test, was developed by the Research Branch for the Surgeon General in order to identify individuals with psychiatric disorders and eliminate them from military services. The army had planned on evaluating the theory behind the screening test as well as the economics and practical issues involved in implementing the screening program. However, because the NSA test was officially adopted for use just a few months before the end of the war it was not utilized enough to allow for the evaluation of its impact (Morabia and Zhang 2004).

Presently, the US Veterans Administration (VA) continues to implement mental health screening programs. Because of the high rates of psychiatric disorders found following the Vietnam and Persian Gulf Wars as well as the failure of predeployment screenings to reduce the incidence of psychological problems, the focus of screening over the past 10 years has shifted from predeployment screening to the detection of mental health problems following deployment. In June 2004, the VA issued a national directive to initiate the Afghan and Iraq Post-Deployment Screen, consisting of brief, previously validated instruments used to detect symptoms of posttraumatic stress disorder (PTSD), depression, and high-risk alcohol use among veterans who seek VA healthcare (Seal et al. 2008). However, more recent initiatives have focused on screening for mental health concerns earlier in the process, during the recruitment phase. For example, in May 2014, the House of Representatives passed a bill requiring the National Institutes of Health to design a universal screening instrument for mental health issues among recruits, which would replace the largely informal system for detecting preexisting concerns that is currently in place.

Newborn Screening

In the 1960s, the first large-scale, state-mandated newborn screening program was implemented to identify the presence of a genetic metabolic disorder called Phenylketonuria (PKU). PKU is an autosomal recessive genetic disorder characterized by a deficiency in the enzyme phenylalanine hydroxylase (PAH), which is necessary to metabolize the amino acid phenylalanine to the amino acid tyrosine. If left untreated, PKU can cause problems with brain development, leading to progressive mental retardation and seizures. Though there is no cure for PKU, by screening all infants at birth before the disorder manifests any observable symptoms, and placing those who test positive on a diet low in phenylalanine and high in tyrosine, it is possible to prevent the irreversible effects of the condition.

As new screening techniques have developed and individual disease genes have been identified, states have added a range of other conditions to their mandated newborn screening programs and the development of pilot screening programs has begun for numerous genetic and prenatal conditions including Down's syndrome, neural tube defects, Tay–Sachs disease, and cystic fibrosis. In 2005, a report released by the American College of Medical Genetics (ACMG) called for all states to adopt a core newborn screening panel consisting of 29 primary disorders as well as 25 secondary disorders (Watson et al. 2006).

Some researchers have voiced concern over the rapid expansion of recommended newborn screenings, stating that “a new condition should be added to the mandatory panel only when there is an established screening test and good evidence that the condition causes serious harm and that the harm can be avoided if the infant is diagnosed and treated immediately after birth” (Baily and Murray 2008, p. 25). PKU is an excellent example of a mandatory, universal screening program that can be justified under these criteria as well as the criteria provided by Wilson and Jungner (1968). However, Moyer et al. (2008, p. 36) feel that “the push for expanded newborn screening has bypassed traditional, evidence-based decision-making processes at both the state and federal level.” They argue that many of the disorders identified by the ACMG are not yet fully understood, have no proven treatment, or have treatments that are helpful only after clinical presentation, and should therefore not be on the mandatory screening panel as we should not mandate screening for a condition simply because we have the technology to do so. Some parents may not want to be informed that their child has the condition if there is no medical treatment or benefit to early detection. Other factors that must be considered include the natural history and progression of the disorder, the cost-effectiveness of the screening, the benefit–harm ratio of conducting the screening (e.g., will screening lead to unnecessary worry and labeling?), the effectiveness versus the risks of treatments and preventative strategies, the validity of the screening instrument, and the state's ability to create and sustain a system that works for each disorder. Many of these issues also pertain to the issue of universal mental health screening and are discussed later in the text.

Medical Screening

In 1957, the commission on chronic disease indicated that screening might be effective for the following medical conditions: pulmonary tuberculosis, visual defects (including chronic glaucoma), hearing defects, syphilis, diabetes, hypertensive disease, and cancers of the skin, mouth, breast, cervix, and rectum (Wilson and Jungner 1968). Currently, screening for many of these conditions is conducted by physicians (e.g., cancers, hypertensive disease) or at schools (hearing, vision). However, screening for some diseases is no longer relevant due to the success of previous screening programs in eliminating these conditions from the population (e.g., tuberculosis, syphilis).

Syphilis

Following World War II, syphilis screening increased significantly due to the simultaneous availability of a rapid test and a quick and effective treatment. In June 1944, penicillin became available to the US Public Health Service and was made available for treating syphilis in the civilian population (Morabia and Zhang 2004). Additionally, two syphilis screening tests became available: non-treponemal tests and treponemal antibody tests. Both types of syphilis screening tests were found to suffer from low sensitivity or the proportion of actual positives which are correctly identified as such (ranging from 0.78 to 0.86), but had excellent specificity or the proportion of negatives which are correctly identified as such (>0.97 ; Larsen et al. 1995). Because of the technical difficulty and costliness of administering the treponemal antibody tests, non-treponemal tests were used for screening and treponemal tests for secondary confirmation. At the end of World War II, of the 15 million men who entered the armed services, 750,000 screened positively for syphilis. In the 1950s and 1960s, a number of screening “blitzes” were performed, consisting of a large-scale examination and treatment of all identified contacts of patients with syphilis (Morabia and Zhang 2004). By the mid-1950s, reported cases of syphilis had declined so sharply that mass testing was eliminated and replaced with selective testing of suspected high-risk subgroups. Since the 1960s, routine serological screening programs have been discontinued in many states (Johnson and Farnie 1994). Overall, the historical effectiveness of syphilis screening provides an example of the long-term public health benefits and cost-effectiveness of a well-executed screening program.

Diabetes Mellitus

Around 1946, following the discovery of insulin in 1923 and an increase in deaths from diabetes, one of the first large-scale community diabetes screenings was completed in Oxford, Massachusetts by the US Public Health Services. Approximately 70.6% of the 4983 residents received both urine and blood glucose testing, and the prevalence of diabetes was found to be 1.7%. Evidence also exists that glucose screening in specific groups was performed prior to this, including army screening in an attempt to eliminate those with diabetes from military service during World War I (Morabia and Zhang 2004).

Several types of tests have been utilized in screening for diabetes. The urinary glucose test has been found to have low sensitivity, and was therefore used only when blood testing was not available or too expensive. Blood glucose screening (including random blood glucose tests and fasting whole blood glucose tests) was found to have higher sensitivity and specificity and was often used along with a urinary test to maximize sensitivity. The oral glucose tolerance test (OGTT) was later developed, but was only used when other tests were inadequate due to inconvenience of administration (Harting and Glenn 1951).

Currently, diabetes screening is recommended for many people at certain stages of life and with certain risk factors. Many health-care providers recommend universal screening for adults at age 40 or 50, and often periodically thereafter. Earlier screening is typically recommended for those with risk factors such as obesity, family history of diabetes, or membership in a high-risk ethnicity group (Hispanic, Native American, Afro-Caribbean, Pacific Island, and South Asian ancestry; Lee et al. 2007). Recently, the United States Preventive Services Task Force (2008, p. 846) recommended that all asymptomatic adults with sustained blood pressure (either treated or untreated) greater than 135/80 mm Hg be screened for type 2 diabetes based upon “evidence that early treatment prevents long-term adverse outcomes including cardiovascular events, visual impairment, renal failure, and amputation.” The screening test varies according to circumstances and local policy, and may include a random or fasting blood glucose test, a blood glucose test 2 h after 75 g of glucose, or an oral glucose tolerance test.

Cancer

Currently, mass screenings for numerous cancers (including cervical, breast, and prostate) are implemented on a routine basis. Before World War II, only pilot programs of cancer detection had been conducted. Following the development of the cervical cancer cytological test (e.g., Pap smear) by Papanicolaou and Traut in 1943, cervical cancer screenings were successfully conducted on a wide scale. Cervical cancer is an excellent candidate for screening as it is detectable in the preclinical phase, thus increasing chances of cure and improved prognosis. Although subject to error at several levels, the Pap smear has been found to have sensitivities ranging from 0.89 to 1.0 (Patten 1969 from Morabia and Zhang 2004). Studies have found that since the widespread use of the Pap smear in the 1970s, the incidence and death rates from cervical cancer in the USA have dropped almost 50%. Despite this decrease, cervical cancer continues to be the second most common cancer among women (Catranis 2005).

In 2003, the American College of Obstetricians and Gynecologists (ACOG) issued new, evidence-based practice guidelines regarding Pap smear frequency stating that as some women need more frequent screening, an increasing number of women no longer need annual cervical cancer screening. They cautioned that annual pelvic examinations are still advised for all women over age 21. Generally, ACOG now recommends an initial Pap test approximately 3 years after the first sexual intercourse experience or by age 21, whichever comes first. Women up to age 30 should continue to undergo annual Pap testing whereas those over age 30 can undergo screening less frequently; the ACOG states that if a woman age 30 or older has negative results on three consecutive annual Pap smears, she may then have her repeat Pap smears every 2–3 years (Catranis 2005).

Mass breast cancer screening began in the 1960s following the development of the mammogram as a screening instrument. The efficacy of breast cancer screening has been demonstrated in randomized controlled trials (RCTs) and observational

studies; thus, most organizations that issue recommendations endorse regular mammography as an important part of preventive care (Smith et al. 2003). In 2003, the American Cancer Society updated their recommendations regarding breast cancer screening to suggest that women of average risk begin having annual mammograms at age 40. They also indicated that women at increased risk of breast cancer might benefit from additional screening strategies such as earlier initiation of annual screening, shorter screening intervals, or the addition of screening modalities other than mammography and physical examination such as ultrasound or magnetic resonance imaging. However, the American Cancer Society concluded that the evidence was insufficient to justify recommendations for any of these alternative screening approaches (Smith et al. 2003).

As one can see, the USA has a rich history of screening practices that continue to be implemented today. The principles of prevention, early detection, and universal care were first applied to the field of infectious disease through the use of mass screenings, early treatment, and prevention strategies including vaccinations, water safety, and other public hygiene practices. Infants are screened for a number of genetic diseases at birth, and children are routinely screened for hearing, vision, and scoliosis at school and pediatrician visits. Universal screening approaches are now standard practice for many health concerns and have been largely successful in minimizing the negative effects and, in some cases, eliminating particular diseases from the population. Despite the widespread implementation of screening for medical concerns, screening for mental health issues unfortunately has lagged behind.

Mental Health Assessment and Classification

History of Mental Health Assessment

Experimental psychology can trace its roots back to the opening of Wilhelm Wundt's experimental psychology lab in Germany in 1879. Wundt and his assistant, Cattell, found individual differences on measures of sensory abilities and reaction time. These types of measures were incorporated into intelligence tests developed by Cattell and Sir Francis Galton. Galton believed that intelligence was inherited and could be objectively measured, and developed a battery of tests that he thought would allow him to study the inheritance of intelligence. In addition to intelligence, Galton was also intrigued by the measurement of "character," citing a personality inventory developed by Benjamin Franklin in order to demonstrate the utility of personality measurement (Kamphaus and Frick 2002). Therefore, formal psychological assessment stemmed from other efforts to measure individual differences.

Additionally, the psychological testing of soldiers in the US Army during World War I and the development of the previously mentioned Woodworth Personal Data Sheet (Woodworth 1918) can be considered two of the main impetuses for the development of more formal and widely used measures of psychological functioning.

The Woodworth Personal Data Sheet, consisting of 116 questions about daydreaming, worry, mood, and other problems, has been described as “the linear ancestor of all subsequent personality inventories, schedules, and questionnaires” (DuBois 1970, p. 94). French and Hale (1990) suggest that the Woodworth Personal Data Sheet served as the foundation for future scales such as the Thurstone Personality Scale and the Allport Ascendancy-Submission Scale, among others. The success of World War I applications of psychological testing demonstrated the practical value of psychology to society.

As reviewed in a previous section, following World War II the US VA began using psychologists in large numbers to diagnose and treat returning veterans suffering from significant psychological problems such as PTSD. Psychologists began developing new methods for assessing personality and psychological functioning to meet this need. Since this time, the assessment of personality, behavior, emotions, and social functioning has increased dramatically and expanded into a wide variety of areas including education, counseling, personnel selection, and even online dating services.

In the early half of the twentieth century, projective assessment techniques were the most popular forms of psychological assessment (Kamphaus and Frick 2002). Projective techniques were based upon the idea that the use of ambiguous stimuli would encourage individuals to reveal information that they otherwise would not share when questioned directly (Chandler 1990). Examples of popular projective techniques include the thematic apperception test (TAT), the Rorschach test, sentence completion tasks, and drawing tasks such as house-tree-person or the Kinetic Family Drawing. These techniques continue to be used regularly, although it may be argued that objective techniques are more popular today.

Objective techniques are considered to be more empirically based than the projective techniques described above. Empirical methods and psychometric science have typically been used to develop these measures as well as to interpret their results. The Minnesota Multiphasic Personality Inventory (MMPI; Hathaway and McKinney 1942) was one of the first tests to use an empirical approach to personality test development. Rather than depending on the test authors’ theory of personality for item selection (*rational-theoretical approach*), as was most popular at that time, the MMPI used an item-selection method called *empirical criterion keying* (Martin 1988). Generally, this technique involves selecting items that routinely differentiate clinical groups from samples of controls, and further distinguish clinical groups from each other, without taking the content of the items into account. In the 1950s, the personality inventory for children (PIC), an offshoot of the MMPI, was developed using factor-analytic methods for the personality assessment of children.

Personality Versus Behavioral Assessment

Historically, personality assessment focused on identifying the more enduring and stable characteristics or traits of a person and his or her pattern of interaction with

the environment. The most popular examples of this type of classification would be the MMPI described above as well as the big five personality traits or factors discovered by Tupes and Christal (1961) through multiple analyses of numerous data sets from scales of bipolar personality descriptors (Kamphaus and Frick 2002). These five factors are: introversion/extroversion, agreeableness, conscientiousness, emotional stability, and culture, intellect, openness and are assessed by having the individual complete a forced-choice item format questionnaire in which adjectives are used as personality descriptors.

During the rise of popularity of behaviorism, psychologists began focusing on smaller, observable units of analysis or “behaviors” rather than the trait-based methods described above. As described by Martin (1988, p. 13), “Behavior is differentiated from traits or dispositions because the latter may only be seen if behavior is aggregated over relatively long periods of time and in a number of environmental contexts. Classical examples of observed behaviors of interest to child psychologists include tantrum behavior among young children, aggressive interactions with peers, attempts at conversation initiation, and so forth.” In this way, an emphasis is placed on the way an individual behaves, adjusts, or reacts to environmental stimuli. Kamphaus and Frick (2002, p. 3) have presented three “distinguishing features of behavioral assessment methods.” First, behavioral assessment has a different theoretical foundation than trait-based psychological assessment; behavioral assessment draws heavily on behavioral theories such as Skinner’s operant conditioning and is often considered more empirically based. Second, unlike the medical model of assessment, which assumes that symptoms are caused by underlying medical conditions which must be measured, diagnosed, and treated in order to eliminate the symptoms, behavioral assessment emphasizes the measurement and treatment of the behaviors or symptoms themselves. Lastly, behavioral assessment places greater emphasis on the assessment of discrete behaviors.

More recently, the use of rating scales for the assessment of child psychopathology has become increasingly popular and widespread. Several behavior rating scales such as those developed by Achenbach, Conners, Reynolds, and Kamphaus have begun to blur the line between behavioral and trait-based assessment through the assessment of dimensions of behavior such as internalizing and externalizing behaviors (Kamphaus and Frick 2002). Internalizing problems are often described as “overcontrolled” adjustment difficulties such as problems with anxiety, inhibition, depression, somatic complaints, and social withdrawal. Children with externalizing problems, on the other hand, may be described as “undercontrolled” and have difficulties with aggression, hyperactivity, conduct problems, and acting-out behavior (Edelbrock 1979). These two dimensions of child psychopathology have been supported by many factor-analytic investigations of both parent and teacher rating scales as well as by concurrent validity studies (Edelbrock 1979). The robust evidence of the existence of the internalizing and externalizing dimensions has led to their use in the development of many child rating scales including the Achenbach Child Behavior Checklist (CBCL; Achenbach 1991) and the Behavior Assessment System for Children (BASC and BASC-2; Reynolds and Kamphaus 1992, 2004). More information about these and similar instruments is presented in Chapter 4.

Why Classify?

Classification is a natural human activity that helps us make sense of our world. We are constantly grouping people and things we encounter based upon similarities and differences so as to organize and understand these things more efficiently. People informally assess and classify personality and behavior every day. Mothers and teachers describe children as sensitive, difficult, inattentive, or easygoing. Upon meeting someone, we quickly assess and classify him or her as someone we would like to get to know better or someone we would rather avoid in the future.

One of the primary purposes of mental health assessment is to classify or diagnose individuals so as to make decisions regarding appropriate courses of treatment or intervention. *Classification* can be broadly defined as the systematic arranging or distributing of phenomena into groups or categories according to established criteria or sets of rules. In psychological assessment, two levels of classification might be delineated: (1) to determine when psychological functioning is abnormal, deviant, or in need of treatment; and (2) to determine the specific types of psychopathology that are present (Kamphaus and Frick 2002). *Diagnosis* may be considered a specialized, more restrictive form of classification focused on the categorization of diseases and consistent with the second type of classification described above. Mental health screening, on the other hand, focuses on the first level of classification in which we determine whether an individual is generally at-risk for or exhibiting subsyndromal mental health symptoms requiring intervention rather than officially diagnosing and differentiating between disorders (Dever and Kamphaus 2013).

The classification of mental disorders can be traced back to the earliest times in recorded history. Greek writings referred to four terms, “melancholia,” “hysteria,” “mania,” and “paranoia,” which are still used today (Blashfield 1998). During the middle ages, mental disorders were considered a sign of the presence of something evil, and were therefore under the domain of religious authorities rather than physicians or scientists. Then, around the late 1700s, records suggest a shift in this way of thinking as, for example, King George III of England was treated for his psychosis by medical personnel rather than religious authorities. An increasing interest in psychopathology during the nineteenth century led to the development of several mental disorder classification systems.

William A. Hammond, a nineteenth century neurologist with an interest in psychiatry, argued for six possible principles around which one could organize a classification system:

1. Anatomical organization by the part of the brain that is affected.
2. Physiological organization by the physiological system in the brain.
3. Etiological organization by supposed causes.
4. Psychological organization based upon a functional view of the mind.
5. Pathological organization by observable, morbid alterations in the brain.
6. Clinical organization based upon descriptive clusters of symptoms.

Hammond indicated that the anatomical, physiological, and etiological principles were optimal for the design of a classification system, but that they could not be used at that time due to insufficient science (Blashfield 1998). Therefore, he utilized the psychological principle to create his classification system indicating six major categories of mental disorders:

1. Perceptual insanities (e.g., hallucinations)
2. Intellectual insanities (e.g., delusional thoughts)
3. Emotional insanities (e.g., melancholia or depression)
4. Volitional insanities (e.g., abulomania)
5. Compound insanities (i.e., disorders affecting more than one area of the mind, comorbidity)
6. Constitutional insanities (i.e., disorders with specific causes such as choreic insanity) (Blashfield 1998).

Around the turn of the century, a German psychiatrist named Emil Kraepelin was the medical director at an insane asylum in eastern Prussia. While there, he published a number of psychology studies and textbooks about psychopathology organized around what he believed to be the major categories of mental disorders (Kraepelin 1902/1896). As opposed to Sigmund Freud, Kraepelin argued that psychiatric diseases were mainly caused by biological and genetic disorders. He is credited with classifying what was previously considered to be a unitary concept of psychosis into two distinct forms: manic depression (now seen as comprising a range of mood disorders such as major depression and bipolar disorder), and dementia praecox (or schizophrenia). His fundamental theories on the etiology and diagnosis of psychiatric disorders formed the basis of the major diagnostic systems in use today, including the *American Psychiatric Association's Diagnostic and Statistical Manual* (DSM 1994, 2013) and the World Health Organization's ICD system (Blashfield 1998).

The current classification systems in psychology and psychiatry are riddled with imperfections largely due to the constructs with which these fields must work. Psychological phenomena are inherently messy and do not fit perfectly into categories of normal and abnormal nor into definite, nonoverlapping types of psychopathology. Rather, these constructs tend to fall along dimensions with no clear demarcation of pathology and non-pathology and comorbidity tends to be the rule rather than the exception, especially when dealing with children.

In spite of the challenges in defining psychopathology, most researchers continue to agree that explicit classification is necessary despite its imperfections (Kamphaus and Frick 2002). Blashfield (1998) has described five primary purposes for classification:

1. Creation of a common professional nomenclature.
2. Organization of information.
3. Clinical description.
4. Prediction of outcomes and treatment utility.
5. The development of concepts upon which theories may be based.

Through the development and use of common, operationally defined terminology and classifications, professionals are able to communicate with each other, retrieve information more effectively, predict future behaviors, and document the need for services. Best practice appears to support utilizing our current systems of classification while being aware of and attempting to minimize the dangers and pitfalls of doing so. Two of the main limitations of classification are the information lost through labeling and the illusory break created between normal and pathological psychological functioning when attempting to fit people into clear-cut categories (Kamphaus and Frick 2002).

Categorical Versus Dimensional Models of Classification

Two organizational models of classification often discussed in the literature are the categorical (or medical) model and the dimensional (or multivariate) approach. The *categorical model* assumes a disease entity that differs *qualitatively* from normality, and then defines the symptoms that are indicative of the presence of the disorder. Typically, a sharp distinction is made between disordered and non-disordered individuals. An individual either has the disorder or does not. Optimal methods for assessment using a categorical approach would include structured diagnostic interviews, semistructured or unstructured interviews, collection of historical information, and classroom observations (Kamphaus et al. 2006).

The *dimensional approach*, on the other hand, focuses on *quantitative* distinctions along dimensions of behavior. Empirical methods, usually multivariate statistical procedures including cluster or factor analysis, are used to isolate behavioral dimensions from measures such as behavior rating scales. An individual's level of functioning, across various dimensions of behaviors on a continuum from normal to deviant, is then assessed. Classification is based upon comparing an individual's functioning relative to a representative normative sample (i.e., norm referencing) and designating a certain level of functioning as adequately deviant from the average population as to be significant (Dever and Kamphaus 2013). Methods of assessment would include behavior rating scales completed by multiple informants, formal tests of cognition and achievement, and tests of adaptive behavior (Kamphaus et al. 2006).

Blashfield (1998, pp. 69, 70) outlined a number of tenets of each model (see Table 2.1).

Although these two models are sometimes thought to be competing and mutually exclusive, integrating these models is possible and perhaps ideal as both have their strengths and weaknesses. The relative value and superiority of these two classification models has been frequently debated (Dowdy et al. 2009; Fletcher 1985).

Advantages of the categorical model of classification are quite apparent. By developing clear and concise operationally-defined diagnostic criteria for disorders, diagnostic agreement is increased and communication is improved among professionals for research and treatment development as well as to the public

Table 2.1 Comparison of the categorical and dimensional models of classification

Categorical model	Dimensional model
1. Unit is psychiatric classification of patients	1. Unit is a descriptive variable (e.g., a symptom, characteristic, etc.)
2. Categories should be discrete	2. Dimensions are abstract variables, and represent a continuum
3. The members of a category should be relatively homogeneous	3. The dimensions account for almost as much variance as do the larger number of descriptive variables to which they are related
4. Categories may have some overlap, but this is not intended. Where categories do overlap, the number of patients in these comorbid areas should be relatively small	4. Dimensions may be correlated or independent, but due to relationships among descriptive variables correlations among dimensions are often expected
5. Cluster analytic methods are used to identify categories. Discriminant analysis is used to validate categories	5. Exploratory factor analysis and multidimensional scaling are used to identify dimensions. Confirmatory factor analysis can be used to validate a specific dimensional model

(Dowdy et al. 2009; Kamphaus et al. 2006). The main disadvantages of a categorical system are largely due to the nature of psychopathology itself or, as described by Jablensky (1999), a lack of goodness of fit between our categorical classification system and “clinical reality.” Ideally, when using a categorical system, members of given categories or diagnoses should be relatively homogeneous and boundaries between categories should be clear. This does not appear to be the case with current psychological diagnoses as individuals with the same diagnosis are often quite heterogeneous and boundaries between diagnoses are fuzzy. The over-use of atypical disorders, such as those labeled as “Not Otherwise Specified,” indicating a failure to meet the set diagnostic criteria, also lead clinicians to question the validity and utility of current diagnostic categories (Kamphaus et al. 2006).

Achenbach and McConaughy (1992) argued that the dichotomous nature of a categorical model fails to account for those children whose problems vary in degree or severity. Research has begun to accumulate suggesting that many child behavior problems such as inattention, hyperactivity, depression, and conduct problems fall along continua in the population (Kamphaus et al. 2006). Due to the continuous, rather than all or none, nature of these behaviors, important information is lost, such as the severity of the disorder (e.g. mild, moderate, or severe) or significant subsyndromal psychopathology that is functionally impairing but below diagnostic thresholds (Hudziak et al. 1999; Scahill et al. 1999).

Kamphaus et al. (2006) identified the inability to adequately account for comorbidity as another main weakness of categorical classification systems. Studies have found that a large number of individuals meeting diagnostic criteria for one disorder also have at least one additional disorder (Clark et al. 1995; Wittchen 1996). This finding suggests that either psychopathology lends itself to high rates of co-occurring disorders or that the current diagnostic system does not adequately discriminate between disorders (Kamphaus et al. 2006). In either case, the current psychiatric systems of classification are not adequately addressing the issue of comorbidity.

The dimensional model does appear to solve many of the problems associated with categorical classification. Dimensional models provide clinicians with clinical symptom presentations of varying severity as well as those that may be considered subsyndromal or subthreshold, comorbid, or atypical in categorical classification systems. Kamphaus et al. (2006) identified a number of advantages of the dimensional model in comparison to the categorical model including better predictive validity and reliability (Cantwell 1996; Fergusson and Horwood 1995), a minimal need for clinical judgment and inference (Haynes and O'Brien 1988), greater sensitivity in detecting comorbid conditions (Caron and Rutter 1991), the ability to depict multiple symptom patterns in a single individual simultaneously, and the opportunity to identify subtypes or clusters of individuals in order to guide the development of more efficient subtype-specific intervention and prevention services (Achenbach 1995; Bergman and Mangusson 1997).

Limitations of the dimensional model also exist; these limitations generally concern the lack of consensus amongst professionals and lack of supporting research available at this time. Information provided from dimensional methods is less concise and less familiar to professionals and therefore has the potential to hinder communication. Additionally, the statistics and computations necessary for dimensional methods may be too cumbersome and complicated, therefore lacking clinical utility and feasibility (Kamphaus et al. 2006).

Some researchers have suggested that categorical methods may be optimal for certain syndromes while dimensional methods would be better for others (Arend et al. 1996). Certain childhood disorders with symptoms that are distributed along continua in the population and are related to the internalizing and externalizing dimensions of psychopathology may be measured most effectively by using dimensional models. These disorders might include inattention, hyperactivity, conduct problems and oppositional behaviors, anxiety and somatization, depression, learning disabilities, and mental retardation (Kamphaus et al. 2006). Other disorders, such as schizophrenia, eating disorders, and autism appear to differ qualitatively from normality and are best identified using a more categorical approach.

Current Classification Systems

Diagnostic and Statistical Manual of Mental Disorders

The *Diagnostic and Statistical Manual of Mental Disorders*—Fifth Edition (DSM-V; APA 2013) is currently the most widely used method of psychiatric classification in the USA. Although largely categorical in nature, the latest version of the DSM has begun to incorporate aspects of the dimensional model into some of its disorders (i.e., mental retardation, attention deficit/hyperactivity disorder).

The first two editions of the DSM (1952, 1968) were developed using a categorical model of classification. The definitions of disorders centered around an underlying pathological core largely based upon Freud's psychodynamic theories. The

DSM-III (1980/1987), however, took a more “functional approach to viewing disorders in which mental disorders were viewed as a clinically significant behavioral or psychological syndrome or pattern that occurs in an individual and that is typically associated with either a painful symptom (distress) or impairment in one or more areas of functioning (disability)” (Kamphaus and Frick 2002, p. 53). Additionally, an emphasis was made to make diagnostic categories more empirical by basing classification on scientific evidence rather than clinical consensus (Blashfield 1998). Disorders were also defined more specifically, which led to greater reliability in the DSM-III and DSM-IV. Following the publication of the DSM-III, numerous studies began to appear in the literature exploring the validity of the diagnostic criteria, allowing for the development of a more comprehensive research base on which to develop the DSM-IV. However, reliability and validity of DSM diagnoses continues to be lower than that of most psychological tests (Sroufe 1997; Kamphaus et al. 2006).

The DSM-IV, published in 1994, contained 354 diagnostic categories nested within 17 major categories. It retained the multiaxial system from the DSM-III along which individuals should be coded:

- Axis I: Clinical disorders, other conditions that may be a focus of clinical attention (includes 16 general categories of disorders)
- Axis II: Personality disorders/mental retardation (includes 11 different personality disorders, and mental retardation)
- Axis III: General medical conditions (includes current general medical conditions that may be relevant in understanding or treating the individual’s mental disorder)
- Axis IV: Psychosocial and environmental problems (includes psychosocial and environmental factors that may affect diagnosis, treatment, and prognosis of mental disorders)
- Axis V: Global assessment of functioning (includes a rating of overall level of functioning with 1 being most severe and 100 as most adaptive)

The newest edition of the DSM, the DSM-V, acknowledges the movement toward dimensional approaches to diagnosis. The dimensionality of broader internalizing and externalizing features are discussed in the introduction; furthermore, high levels of comorbidity are provided as evidence of the need to consider more dimensional approaches to diagnosis. The DSM-V (APA 2013) does not assume an underlying pathology and many of the diagnostic criteria of the disorders are based upon patterns of symptom covariation (e.g., ADHD)—a basic tenet of the dimensional model. Furthermore, the multiaxial approach to diagnosis has been dropped in this most recent edition, citing limited additional information in support of Axes III and IV and poor psychometric properties of the Global Assessment of Functioning score provided on Axis V. Despite consideration of a more dimensional method, the DSM-V remains consistent with the categorical approach, continuing to classify disorders into discrete categories and calls for additional information prior to changing most diagnoses.

Individuals with Disabilities Education Improvement Act (IDEIA)

In 1974, Public Law 94–142, or the Education of Handicapped Children’s Act was implemented. The law required that the US public schools identify and serve all children with disabilities in the least restrictive environment possible, including those who had previously been educated in various alternative settings such as residential treatment programs. In 1986, an amendment was made to the act that added an early intervention program for children ages 0–2 and the inclusion of children ages 3–5 as eligible for free and appropriate public education. In 1990, another amendment changed the Education for All Handicapped Children Act to the Individuals with Disabilities Act (IDEA). The new amendment expanded special education categories to include autism and traumatic brain disorder and added transition services for children ages 16 and older.

Two reauthorizations of the act have since occurred, one in 1997 and most recently in 2004 when the name was changed to the IDEIA. Several issues were emphasized in the 2004 reauthorization including the reduction of overidentification of ethnically diverse populations, early intervention, streamlining of the special education process, as well as the introduction of alternative models, such as response to intervention (RtI), for classifying specific learning disabilities (see Chap. 5).

Although the IDEIA is legislation and not a formal diagnostic system, the implementation of its regulations has, in effect, created a diagnostic system that functions to classify individuals as eligible for special education or related services in the schools (Kamphaus et al. 2006). The DSM and IDEIA offer two very different perspectives on children’s adjustment problems. The DSM-V focuses on identifying problematic patterns of behavior that cause suffering or obvious impairment in life adaptation. It is very broad by intention as the goal is to classify all significant problems of behavior and adjustment. IDEIA, on the other hand, focuses on identifying psychological or medical disabilities that would prevent a child or adolescent from benefiting fairly from a public education unless appropriate remediation is made. In general, the goal of DSM-V is aimed at reliable and valid classification for the purposes of clinical treatment and research to improve clinical treatment. IDEIA is aimed at providing safeguards so that all children and adolescents in the USA have a fair and equal opportunity to benefit from public education, and to ensure free and appropriate public education and related services to *all* children and adolescents with disabilities.

As part of this legislation, specific classification criteria for 12 disability conditions (see Table 2.2) eligible for special education were developed and adopted. This system can be considered another categorical classification system as students either meet criteria or do not.

The two categories most pertinent to this text and to emotional and behavior assessment are other health impairment (OHI) and emotional disturbance. Under IDEIA, ADHD is a medical condition, diagnosed by a medical doctor. Children with ADHD are served under the OHI special education category. To be classi-

Table 2.2 Disability classifications under IDEIA

Classifications under IDEIA
Autism
Specific learning disability
Intellectual disability
Emotional disturbance
Other health impairment
Speech–language impairment
Significant developmental delay
Deaf/blind
Deaf/hard of hearing
Visual impairment
Orthopedic impairment
Traumatic brain injury

fied as OHI, individuals must have “limited strength, vitality, or alertness including heightened alertness to environmental stimuli, that results in limited alertness with respect to the educational environment that:

1. Is due to chronic or acute health problems such as asthma, ADHD, diabetes, epilepsy, heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, and sickle cell anemia
2. Adversely affects a student’s educational performance.”

The diagnostic criteria for emotional disturbance (see Table 2.3), developed by Eli Bower in 1968, have been controversial since their inception as they do not align with the DSM and are quite ambiguous, leaving considerable room for interpretation (Kamphaus et al. 2006).

Table 2.3 Criteria for emotional disturbance

Criteria for emotional disturbance under the Individuals with Disabilities Education Act (2004)
1. The term means a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child’s educational performance:
A. An inability to learn that cannot be explained by intellectual, sensory, or health factors
B. An inability to build or maintain satisfactory interpersonal relationships with peers and teachers
C. Inappropriate types of behavior or feelings under normal circumstances
D. A general pervasive mood of unhappiness or depression
E. A tendency to develop physical symptoms or fears associated with personal or school problems
2. The term includes schizophrenia. The term does not apply to children who are socially mal-adjusted, unless determined that they have an emotional disturbance

Current Mental Health System Trends and Issues

The present state of child and adolescent mental health in the USA has become an area of major concern across the highest levels of government, including the president of the USA and members of both the House of Representatives and the Senate. In the past 15 years, a number of conferences and commissions have been formed in order to work toward the development of action plans and solutions to the problem at hand.

In 1999, the Substance Abuse and Mental Health Services Administration (SAMHSA) and the National Institutes of Health (NIH) collaborated in creating the *Report of the Surgeon General on Mental Health*. This report calls for the implementation of a public/community health model. According to the public health model, we should be focusing on strategies that affect the population at large, thus emphasizing health promotion, disease prevention, early detection, and universal access to care. In line with this model, the report identifies the following courses of action: continue to build the research base, overcome stigma, improve public awareness of effective treatments for mental health problems, ensure the supply of mental health services and providers, ensure delivery of state-of-the-art treatment, tailor treatment to age, gender, race, and culture where appropriate, facilitate entry into treatment, and reduce financial barriers to treatment (United States Department of Health and Human Services 1999). Of essential importance is that first-line contacts in the community, such as schools and primary care physicians, recognize and respond sensitively to mental illness, know what resources exist, and make proper referrals or address problems effectively themselves (United States Department of Health and Human Services 1999).

In 2000, the Department of Health and Human Services, Department of Education, and Department of Justice collaborated on a report about the Surgeon General's Conference on Children's Mental Health. In creating this report, they outlined eight goals for their national action agenda:

1. Promote public awareness of children's mental health issues and reduce stigma associated with mental illness.
2. Continue to develop, disseminate, and implement scientifically proven prevention and treatment services in the field of children's mental health.
3. Improve the assessment of and recognition of mental health needs in children.
4. Eliminate racial/ethnic and socioeconomic disparities in access to mental health-care services.
5. Improve the infrastructure for children's mental health services, including support for scientifically proven interventions across professions.
6. Increase access to and coordination of quality mental health-care services.
7. Train frontline providers to recognize and manage mental health issues, and educate mental health-care providers about scientifically-proven prevention and treatment services.
8. Monitor the access to and coordination of quality mental health-care services.

The steps that must be taken in order to reach these goals are numerous; however, many of these steps are in agreement with the public health model advocated by the SAMHSA and NIH in the preceding report. These steps include identifying early indicators for mental health problems, encouraging early identification of mental health needs in existing preschool, education, health, welfare, and substance abuse treatment systems, creating tangible tools for practitioners in these systems to help them assess children's social and emotional needs, training all primary health-care providers and educational personnel to recognize early indicators of mental health problems, and encouraging the health-care system to respond to mental health prevention and treatment service needs through universal and comprehensive health coverage (United States Public Health Service 2000).

In 2003, George W. Bush created the New Freedom Commission on Mental Health. Once again, goals were put forth for the transformed mental health system:

1. Americans understand that mental health is essential to overall health.
2. Mental health care is consumer and family driven.
3. Disparities in mental health services are eliminated.
4. Early mental health screening, assessment, and referral to services are common practice.
5. Excellent mental health care is delivered and research is accelerated.
6. Technology is used to access mental health care and information.

A common thread found in all of these action plans is the need for early identification of children and adolescents for mental health problems. For example, the *Report of the Surgeon General's Conference on Children's Mental Health* calls for screening and early identification of children within key service systems as well as the development of "a universal measurement system across all major service sectors that is age-appropriate, culturally competent, and gender sensitive to (i) identify children, including those with special health-care needs, who may need mental health services; (ii) track child progress during treatment; and (iii) measure treatment outcomes for individual patients" (United States Public Health Service 2000). Bush's 2003 New Freedom Commission on Mental Health (New Freedom Commission on Mental Health 2003) also advocates for early mental health screening, assessment, and referral to services, resulting in shorter and less disabling courses of impairment. It states that, "Quality screening and early intervention will occur in both readily accessible, low-stigma settings such as primary health-care facilities and schools, and in settings in which a high level of risk exists for mental health problems, such as criminal and juvenile justice and child welfare systems." Additionally, in 2002, the President's Commission on Excellence in Special Education put forth that:

...compelling research sponsored by [the office of Special Education Programs] on emotional and behavioral difficulties indicates that children at risk for these difficulties could also be identified through universal screening and more significant disabilities prevented through classroom-based approaches involving positive discipline and classroom management. (Section 2, p. 2)

These action plans suggest that through universal screening for mental health concerns we can work to reduce risk, prevent onset, and intervene early so as to improve outcomes significantly.

In May 2005, the Campaign for Mental Health Reform addressed the US Senate and House of Representatives and referred to the current state of child and adolescent mental health services as a “public health crisis.” To be convinced of the idea that we are in the midst of such a public health crisis, one must understand the importance of mental health to our overall well-being as well as the inadequacy of our current mental health system of care and prevention. In the next chapter, we discuss the current status of the mental health system and build the case for the importance of universal screening efforts to support early intervention and prevention efforts.

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