R. Corsini (Ed.), *Encyclopedia of psychology* New York: Wiley

as they are the least likely to overmedicate. These psychologists take the position that prescription privileges, similar to hospital privileges, are natural extensions of psychological practice, are in the best interests of the public and in effect, represent sound public policy. They argue that issues concerning training, malpractice insurance, changes in licensing laws, third-party reimbursements, hospital privileges, etc. are real but secondary issues.

CONCLUSIONS

Opinions on this topic have appeared in letters to the editor of the *APA Monitor* and are heard in discussions with clinical psychologists. Here are some of these concerns and opinions. Clearly, there are public policy, training, and marketing issues involved in the controversial area of prescription privileges for psychologists. As of 1992, however, the overarching issues appear to focus on political and identity concerns. Currently, a significant number of psychologists believe that a battle with psychiatry will result in a more widespread war with organized medicine, which might not be in the best interest of organized psychology. Others worry about being viewed as "junior psychiatrists." They express concern that winning the prescription privileges war will result in the medicalization of psychology. Included here is the fear that confidence in psychosocial treatment modalities offered by psychologists will diminish, because some members of the public will be afraid that they will receive drug treatments from psychologists and thus will turn to other professionals (social workers, counselors, ministers) for psychological interventions. On the other hand, some psychologists are concerned that more patients will turn to them for a quick fix via medications rather than taking the more arduous path of psychotherapy.

There are responses to these concerns. Psychologists are already involved in physical interventions although these may not be as high profile compared with prescription privileges. To argue that psychologists rely exclusively on nonphysical interventions is simply not true. In addition, as Fox (1989) noted, psychology is not exclusively a mental health discipline, because it deals broadly with behavior change in such areas of health, interpersonal functioning, learning, vocational functioning, and rehabilitation. Psychology impacts among others, families, the able elderly, the physically handicapped, and those with learning characteristics, be they children or adults. Psychology has made major strides in the area of neuropsychology and in health psychology. Prescription privileges can be seen as one more step in the education and training of psychologists to be helpful to society. For those who argue that some psychologists will misuse these privileges because of status, greed, or other reasons, the truth is that there will always be unscrupulous individuals in all professions. There is no evidence that prescription privileges will increase the number of unscrupulous providers.

The argument that prescription privileges should not be allowed because they would fundamentally change the nature of psychology is probably the core argument. Many psychologists believe that prescription privileges should never be permitted because they violate the fundamental tenets of psychology. Nevertheless, a sizable majority of psychologists do believe that some patients need psychotropic medications at some time in their lives. It should be noted that the Task Force on Psychologists' Use of Physical Interventions did define the practice of psychology as including both physical and psychological interventions (APA, 1981). Fox (1989) pointed out that the use of such physical interventions should occur within the context of improving the quality of services, within the competence of the provider and in the service of consumer welfare.

Psychology is a relatively young profession and changes are part of development. At this point, it is too early to forecast whether or not prescription privileges will become part of the practice of psychology in the 21st century.

ADDICTIVE PROCESS
ALTERNATIVE PSYCHOTHERAPIES
AMPHETAMINE EFFECTS
ANTABUSE
BEHAVIOR TOXICOLOGY
BEHAVIORAL MEDICINE
DRUG REHABILITATION
HEROIN ADDICTION
MEDICAL MODEL OF PSYCHOTHERAPY
NEUROCHEMISTRY
PSYCHOPHARMACOLOGY
STIMULANTS
TRANQUIZING DRUGS

N. ABELES

PRIMARY MENTAL ABILITIES

One of the earliest accomplishments of the new science of psychology was the objective measurement of mental abilities. With the introduction of the new method of factor analysis, Charles Spearman (1904) argued that intelligence could be characterized as being composed of a general factor (*g*) common to all meaningful activity and specific factors (*s*) unique to the tasks used to measure intelligence. Commonly used test instruments that applied the concept of general intelligence were soon introduced through the work of Binet and Simon (1905) and Terman (1916). American psychologists engaged in educational and occupational selection activities found the concept of general intelligence less useful for predicting success in specific jobs or other life roles. In addition, work on transfer of training (e.g., Thorndike & Woodworth, 1901) had suggested that the notion of generalizability of a single ability dimension was not justified.

Efforts soon began, therefore, to determine whether human abilities could be described along a parsimonious number of distinct substantive dimensions. Initial work along these lines began with the publication of T.L. Kelley's *Crossroads in the mind of man* (1928), which advocated the determination of group factors representing distinct skills, such as facility with numbers, facility with verbal materials, spatial relationships, speed, and memory. These efforts were also aided by advances in factor analysis that allowed the determination of multiple factors, each representing a latent construct represented by sets of independently observed variables (Burt, 1941; Thomson, 1948; Thurstone, 1935; Tryon, 1935).

Most prominently associated with these developments, L. L. Thurstone (1935) expounded the hope that a careful scrutiny of the relations among a wide array of assessment devices, developed to reflect a given construct as purely as possible, would yield a limited number of dimensions that would reflect "the building blocks of the mind." He proceeded to administer a battery of 56 simple psychological tests to a large number of children in Chicago schools and applied multifactor analysis to determine the basic dimensions. Given the procedures available at the time, he was reasonably successful in showing that fewer than 10 latent constructs could be used to explain most individual differences variance in his measures. The factors obtained in this work were consequently labeled the primary mental abilities (Thurstone, 1938; Thurstone & Thurstone, 1941).

Most of the factors identified by Thurstone have been subsequently replicated in work by others (cf. French, 1951; Horn, 1982; Schaie, Willis, Jay, & Chipuer, 1989). The most important factors, in order of the proportion of individual differences explained, are the following:

Verbal Comprehension (*V*). This factor represents the scope of a person's passive vocabulary and in is most often measured by multiple-choice recognition vocabulary tests.

Spatial Orientation (*S*). The ability to visualize and mentally rotate abstract figures in two- or three-dimensional space. This ability is thought to be involved in understanding maps and charts and in assembling objects that require manipulation of spatial configurations. This may be a complex factor involving both visualization and the perception of spatial relationships.

Inductive Reasoning (*R* or *I*). This is the ability to determine a rule or principle from individual instances, probably involved in most human problem solving. The ability is generally measured by number or letter series that has several embedded rules; the subject is asked to complete the series correctly.

Number (*N*). This is the ability to engage rapidly and correctly in a variety of computational operations. The most simple measure of this ability is a test checking sums for addition problems.

Word Fluency (*W*). This factor represents a person's active vocabulary and is generally measured by free recall of words according to a lexical rule.

Associative Memory (*M*). Found primarily in verbal tasks involving paired associates or list learning. It is not a general memory factor, evidence for which has not thus far been established.

Perceptual Speed (*P*). This ability involves the rapid and accurate identification of visual details, similarities, and differences. It is usually measured by letter canceling, simple stimulus, or number comparison tasks.

Other organizational schemes to characterize multiple abilities have been developed by G. H. Thompson (1948) and P. E. Vernon (1960) in England and by J. P. Guilford (1967) in the United States. The latter system actually classified tasks along a three-dimensional higher-order hierarchy in terms of content, product, and operations involved in each task, resulting in a taxonomy of as many as 120 factors, many of which remain to be operationalized.

For the purposes of educational application, Thurstone and Thurstone (1949) developed a series of tests at several difficulty levels suitable from kindergarten to high school designed to measure Thurstone's first five factors (*V, S, R, N,* and *W*). This battery was updated and revised by Thurstone in 1962. Measures of the other factors may be found in the *Kit of factor-referenced tests* (1976) developed by the Educational Testing Service (Ekstrom, French, Derman, & Harman, 1976).

Although work with the primary mental abilities in educational practice has not been popular in recent years, the primary abilities have experienced a revival as a useful measurement instrument for charting the course of abilities in studies of adult development (cf. Schaie 1987, 1989a; also see ADULT INTELLECTUAL DEVELOPMENT). A special augmented version of the Thurstone tests particularly suitable for work with older adults hs been developd (STAMAT) (Schaie, 1985). The validity of the primary mental abilities in adults has been examined with respect to its relation to measures of practical intelligence and subjective perception of competence (Willis & Schaie, 1986) as well as to specific occupational outcomes (Garfine, Schaie, & Willis, 1988; Schaie, 1958).

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ABSTRACT INTELLIGENCE
CLERICAL APTITUDE TESTING
FACTOR ANALYSIS
STRUCTURE OF INTELLECT MODEL
TESTING METHODS

K. W. SCHAIE

PRIMARY PREVENTION OF PSYCHOPATHOLOGY

Primary prevention involves efforts to reduce the future incidence of emotional disorders and mental conditions in populations of persons not yet affected. The efforts are proactive. Primary prevention sometimes is directed at high-risk groups, or at groups approaching high-risk situations or potential life crises. Programs in primary prevention may involve the reduction of organic factors contributing to psychopathology, efforts to reduce avoidable stress, the building of competencies and coping skills, the development of improved self-esteem, and the enhancement of support networks and groups.

The logic of investing in efforts at primary prevention is supported in several ways. First, the incredible imbalance between the number of people suffering emotional distress and those with mental disorders makes it impossible for individual interventionists to reach those needing help, and this gap is impossible to bridge. For example, in the United States, it is estimated by various sources who have conducted careful epidemiological studies that about 15% of the population is afflicted by "hard core mental disturbances," and an even larger group each year undergoes severe life crises resulting from stresses such as marital disruption and divorce, the death of a loved one, or involuntary unemployment. Individual professional mental health services are reported by the President's Commission on Mental Health (1978) as being available only to some seven million persons. This is the total annual number served with at least one visit to a mental health facility or mental health professional practitioner. Obviously only a very small proportion of persons undergoing mental and emotional disturbances is being seen by a mental health professional. People take their emotional problems to general medical practitioners (where they are likely to get a prescription for a mild tranquilizer), or to members of the clergy, or simply to neighbors or friends. Even if one takes all of these other helpers into consideration, a majority of persons with emotional problems still receives little or no help. To complicate this problem further, the President's Commission on Mental Health (1978) found large groups within the society to be inappropriately served. These groups include members of minority groups, the physically handicapped, the mentally retarded, children and adolescents, and women. In summary, the mental health system, relying as it does on individual therapy, whether physical or psychological, is a long way from supplying enough help to those in need. Groups at highest risk for every kind of mental and emotional pathology (such as migrant farm workers) are least likely to have any help available; groups affluent and sophisticated about psychological services, but not severely affected, are the ones most likely to receive psychotherapeutic services. This continuing disparity buttresses the historic public health view: No mass disorder afflicting humankind is ever brought under control or eliminated by attempts at treating the afflicted individual or by attempts at producing large numbers of individual practitioners.

Most of the enormous improvement in the health and increasing longevity of members of our society has come about as a result of the successful application of the methods of primary prevention within the field of public health. Public health prevention methods are relatively simple and straightforward. They involve "finding the noxious agent" and taking steps to eliminate it or neutralize it; or "strengthening the host," which really means finding methods of building up the resistance of people against the noxious agent; or "preventing transmission,"