Predicting the Prevalence of Mental Retardation in Individual Catchment Areas*

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Abstract: A rationale and a method are presented for estimating the prevalence of mental retardation in individual catchment areas. The method incorporates the *adaptive behavior* criterion of the AAMD definition of mental retardation and proposes prevalence rates based on chronological age and degree of impairment. Special focus is given to the population with moderate to profound mental retardation.

At a meeting of the North Carolina state AAMD chapter, reference was made to the population of mentally retarded persons in numbers that reflected the traditional 3% prevalence rate. A similar basis for projecting the number of mentally retarded individuals in a mental retardation service catchment area was expressed by its mental retardation service coordinator, though there was obvious discomfort over the tremendous disparity between the population projected and the actual numbers served. When it was pointed out that under current federal law, particularly the 1978 Amendments to the Developmental Disabilities Assistance and Bill of Rights Act (P.L. 95-602), that the mental retardation target group was only about one-tenth of that projected by the 3% estimate, there was immediate relief. The cognitive dissonance associated with a projection and a reality which differ by tenfold is not to be minimized and is, presumably, shared with others who have the responsibility for planning mental retardation services.

To the degree that federal and state dollars define who may receive services under the mental retardation rubric, the traditional 3% prevalence rate had some validity, at least until 1978. It reflected the approximate proportion of the general population with IQs of less than 70 (Anastasi, 1961), but the limitations of the 3% rate have long been recognized (Baroff, 1974; Stedman, 1970) because it takes no account of factors which are known to produce variation in prevalence. These include chronological age, sex, race, ethnic group, socioeconomic condition, and urban-rural status (Conley, 1973; Reschly & Jipson, 1976). The predominant source of variation is socioeconomic: parental occupation and education. To the degree that racial and ethnic sources of variance are found they are primarily related to these socioeconomic determinants.

Mild Mental Retardation

Another limiting aspect of the 3% rate is that it is unrelated to the *adaptive behavior* criterion of the AAMD mental retardation definition (Heber, 1959; Mercer, 1973). This element particularly affects those in the 55—69 range who will be classifiable as mentally retarded. While IQs in the 55—69 range are certain to severely limit academic progress,

* *Prevalence is an epidemiologic term referring to the number of individuals classifiable according to a given trait at any one moment in time. Incidence, a term often used synonymously with prevalence, refers to the number of new cases per unit of time (Maloney & Ward, 1979).*

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IQ tests are, after all, best understood as measures of scholastic aptitude (Anastasi, 1961); these adaptive behavior deficits during the school years do not preclude age-appropriate levels of independence either before or after that period. Certainly, in the adult years, the majority of such individuals achieve independence and personal self-sufficiency (Edgerton & Bercovici, 1976; Richardson, 1978) and this is probably most characteristic of the 80% who are free of an obvious organic basis for their intellectual limitation. About 20% of persons in the 55-69 IQ range can be expected to have some organic impairment (Tarjan, 1970) and it is only this segment which is likely to show adaptive deficit throughout life and to potentially warrant continuous classification as mentally retarded. The effect of adaptive behavior is to reduce the level of mild mental retardation of from about 2.3% (Kauffman & Payne, 1975; Maloney & Ward, 1979) to not more than 0.59c. Because those with IQ 55—69 represent almost 90% of all persons with IQs of less than 70, this nearly fivefold reduction has a tremendous impact on the overall mental retardation rate.

Developmental Disabilities

The greatest blows to the 3% rate were the 1978 Amendments, in which the term *developmental disability* was redefined from a categorical (mental retardation, cerebral palsy, epilepsy, and autism) to a functional basis. Of particular significance was the narrowing of its application to persons with a *severe* disability—one which would require services of a *lifelong* or *extended duration* nature. Among the rationales for the redefinition of the potential client group was the need to focus scarce resources on that segment of the developmentally disabled population most in **need** of services. In light of the current fiscal difficulties of community-based mental retardation services, that rationale was painfully prophetic. In any case, the 1978 Amendments gave legislative legitimacy to the adaptive behavior dimension; individuals with mild mental retardation, IQ-wise, are no longer eligible for services unless they have other handicaps which substantially limit their ability to function. The effect of this is to concentrate services to those with from moderate to profound mental retardation.

Moderate to Profound Mental Retardation

The projection of prevalence rates for the current client target group is relatively straightforward. Individuals with IQs in the below 55 range will generally not meet age-appropriate standards for personal independence and will require services, at least sporadically, throughout life. Acknowledging the limitation of this generalization, as of most others, the mental retardation planner can consider all members of this group as at least *potential* clients.

Apart from behavioral considerations, the rates of mental retardation in the moderate to profound range are not subject to the same degree of variation seen in the mild range (Conley, 1973). Using the pre-AAMD tripartite classification of mental retardation, which sets the upper limit of the moderate range as 49, Conley projects a school-age rate of 0.40% (4/1000) for those with IQs of 0-49 (0.12% with IQ 0-24 and 0.28% with IQ 25-49). Conley's overall rate in the 20-64 age range, adjusted for a higher mortality, is 0.32%. Our own estimates are slightly higher, as they represent a broadening of the upper limit of the IQ range to 54. They are 0.50% at school age and 0.40% in the 20-64 age range. The overall rate for the entire population is estimated to be 0.41% or about 4 persons per thousand. The combination of 0.5% for mild mental retardation and 0.4% for the moderate to profound range gives a grand total of 0.9% as the overall prevalence estimate for a given catchment area. This figure represents about one-third of the population traditionally considered mentally retarded.

Determining Prevalence for Individual Catchment Areas

The Table offers the planner a means of estimating the number of developmentally disabled mentally retarded persons within a catchment area. It is limited to individuals with from moderate to profound mental retardation, the population for whom prevalence estimates appear most reliable. Because services are often developed on the basis of chronological age and degree of mental retardation, the Table is so organized. Within this population, the ratio of moderate to severe to profound mental retardation is about 60% moderate, 30% severe, and 10% profound [i.e., NARC 1963 projection of 6.0%, 3.5%,

TABLE

PROJECTED PREVALENCE OF PERSONS WITH FROM MODERATE TO PROFOUND MENTAL RETARDATION IN A HYPOTHETICAL CATCHMENT AREA OF 100,000

	Age Range (Years)			
	0–4	5–19	20–64	65+
Total Population	7,100	27,200	55,000	10,700
Total of Moderate to Profound Mental Retardation	(7,100 × 0.5%) 36	(27,200 × 0.5%) 136	(55,000 × 0.4%) 220	(10,700 × 0.2%) 21
Moderate	(36 × 60%) 22	(136 × 60%) 82	(220 × 60%) 133	(21 × 60%) 13
Severe	(36 × 30%) 11	(136 × 30%) 41	(220 × 30%) 67	(21 × 30%) 6
Profound	(36 × 10%) 3	(136 × 10%) 13	(220 × 10%) 20	(21 × 10%) 2

and 1.5% (Maloney & Ward, 1979)]. For predicting between age groups, the proportions are 0-4 years 7.1%, 5-19 years 27.2%, 20-64 years 55.0%, and 65+ years 10.7%. The Table illustrates the use of these prevalence estimates for a hypothetical catchment area of 100,000 persons. The numbers have been rounded off to avoid decimals.

The Table projects a total of 413 individuals who would be eligible for mental retardation services. Thus the mental retardation planner can estimate the number of persons with from moderate to profound mental retardation as about 4 per 1000 of general population. If the mildly mentally retarded subgroup of 5 per 1000 is added to this, the maximum number of potential clients is estimated to be 9 per 1000.

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