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parable scores from one administration of the Binet to another.

The correlations between IQs on repeated administrations of the Binet were far from perfect, and not all the children obtained similar scores from one administration to another (one child gained 20 IQ points between the first test and the second and lost 16 of those points between the second test and the third). Still, considering the host of factors operating on the children over a 3-year period, the results of this study testify to the constancy of the IQ for EMR children.

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Prevalence of Obesity among Mentally Retarded Adults

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The prevalence of obesity was determined for 1,152 mentally retarded subjects from four settings. The findings confirmed that obesity was a prevalent condition, with more females than males obese and more mildly to moderately retarded individuals than severely to profoundly retarded persons obese. The prevalence of obesity was also observed to increase generally with age in this sample, although not in a direct linear fashion.

Overweight is defined as a 10 to 19 percent excess in body weight relative to standards for height (Bray, Note 1). The term *obesity*, meaning a surplus in body fat, generally refers to body weight exceeding desirable weight by 20 percent or more (Robinson, 1972). Evidence regarding the prevalence of overweight and obesity in American society has been carefully documented by the National Center for Health Statistics (Abraham & Johnson, Note 2). This survey indicated that for women between the ages of 20 and 74 years, 13 percent were overweight and 24 percent were obese; for men in the same age range, 18 percent were overweight and 14 percent were obese.

Limited data regarding the prevalence of overweight and obesity in the retarded

population have been gathered by Kreze, Zelinda, Juhás, and Garbara (1974). Comparing the prevalence of obesity between a low-IQ category (IQ up to 90), average-IQ category (IQ from 91 to 110), and above-average IQ category (IQ 111 and more), they reported an inverse relationship between IQ and prevalence of obesity for women and a similar but less pronounced trend for men. Their mentally retarded sample (IQs less than 70) in the low-IQ category included only 8 subjects, making extension of their findings to the retarded population in general unwarranted. The purpose of the present study was to obtain preliminary information concerning the prevalence of obesity among the retarded population.

A study sample of mentally retarded

adults was generated from four Midwestern settings. The entire population of the first setting ($n = 609$), a public residential institution, was included. A random sample ($n = 78$) was selected from the second setting, a private residential facility ($n = 248$). A random sample ($n = 42$) was also chosen from the population ($n = 235$) in the third setting, a sheltered workshop. The fourth sample included all individuals living in one building ($n = 60$) at a semi-residential facility. The settings were chosen to represent: (a) a less restrictive to more restrictive continuum ranging from institutional care to home care and (b) the range of mental retardation levels from profound to mild. The final projected study sample included 1,152 subjects. Characteristics of the subjects are shown in Table 1.

TABLE 1
NUMBER, AGE, AND AGE RANGE OF SUBJECTS BY
RETARDATION LEVEL AND SEX

Subjects	N	Mean age ^a	Age range ^a
Profound/severely retarded			
Males	376	33.0	18 to 75
Females	272	34.5	18 to 77
Mild/moderately retarded			
Males	258	34.5	18 to 72
Females	228	36.0	18 to 63
Vocationally retarded			
Males	12	35.7	21 to 53
Females	6	41.0	24 to 54

^a In years.

Sex, birthdate, mental retardation level, height (in inches, accurate to $\frac{1}{4}$ inch) and weight (in pounds, accurate to $\frac{1}{2}$ pound) were obtained for all subjects in the sample. Each subject's desirable weight was computed based on the values provided by The Fogarty Center Table (Bray, Note 1), adapted from The Metropolitan Life Insurance Table. For females between the ages of 18 and 25, 1 pound was subtracted from the Fogarty Center's desirable weight values for each year under 25. Regression equations were used to establish desirable weights for heights not included in the Fogarty Center table. Subjects' relative weights were determined by the following formula:

$$\text{Relative Weight} = \frac{\text{Present Weight} - \text{Desirable Weight}}{\text{Desirable Weight}} \times 100$$

Relative weight values of interest for analysis were those between 10 and 19, indicating overweight and those greater than or equal to 20, reflecting obesity. The prevalence of overweight and obesity among the males and females in the sample by their mental retardation level is shown in Table 2.

TABLE 2
PREVALENCE OF OVERWEIGHT AND OBESITY (IN
PERCENTAGES) OF SUBJECTS BY MENTAL
RETARDATION LEVEL

Subjects	N	Over-weight	Obese
Profound/severely retarded			
Males	376	12.5	6.9
Females	272	23.9	13.6
Moderate/mildly retarded			
Males	258	20.5	27.9
Females	228	15.8	38.2

Note. The 18 subjects classified by two settings as vocationally retarded were not included in this table due to small sample size.

Chi-square analysis of the data revealed significant relationships between mental retardation level (profound/severe, moderate/mild) and weight category (nonoverweight, overweight, obese) for males ($\chi^2 = 67.6$, 2 *df*, $p < .001$) and females ($\chi^2 = 29.3$, 2 *df*, $p < .001$). Inspection of Table 2 reveals that the prevalence of obesity increased from severe/profound levels of mental retardation to mild/moderate levels for both sexes. Prevalence of overweight was also higher for mild/moderately retarded males than for severely or profoundly retarded males. For overweight females, this trend was reversed.

The prevalence of overweight and obesity in the sample by sex and age group is shown in Table 3. A significant relationship was found between sex and weight category ($\chi^2 = 19.9$, 2 *df*, $p < .001$). Contributing to this significant relationship was the finding that females were more prevalent than males in the obese category (25.1 and 15.6 percent, respectively); the same trend held true to a lesser extent for the overweight category,

TABLE 3
PREVALENCE OF OVERWEIGHT AND OBESITY (IN
PERCENTAGES) OF SUBJECTS BY AGE GROUP

Age range ^a	Males		Females	
	Over- weight	Obese	Over- weight	Obese
18 to 77	15.9	15.6	20.6	25.1
18 to 24	8.9	10.1	19.4	12.9
25 to 34	16.6	14.5	18.1	30.8
35 to 44	14.8	21.1	25.7	21.2
45+	25.3	18.6	20.3	29.7

^a In years.

where females were more prevalent than males (20.6 and 15.9 percent, respectively). A second analysis revealed a significant relationship between weight category and age group for males ($\chi^2 = 25.93$, 6 df, $p < .001$) and females ($\chi^2 = 14.47$, 6 df, $p < .025$). Contributing to the significant relationship found for males was the sharp increase observed in overweight and obese individuals between the 18 to 24 year age group and the 25 to 34 year age group, and the relatively high proportions obtained in the obese category for ages 35 to 44 and the overweight category for those at least 45 years of age. The larger proportion of obese females in the 25 to 34 age range (30.8 percent) as compared to the younger age range, 18 to 24 years (12.9 percent), contributed most to the significance found. The relatively high proportion of overweight females in the 35 to 44 age range (25.7 percent) also contributed, but to a lesser extent.

In the present study we gathered preliminary data regarding the prevalence of obesity in the retarded population. The findings indicated (a) a higher proportion of retarded women than men are obese, (b) a higher proportion of moderate/mildly retarded persons are obese than are those in the severe/profound range, and (c) prevalence of obesity generally increased with age but not in a direct linear fashion.

Given the preliminary nature of this study, specific statements regarding the nature, cause, or course of obesity in the retarded population would be speculative; however, obesity clearly presents a prevalent condition for male (16 percent) and female (25 percent) retarded individuals, as it does for the general population. Our sample

indicates that obesity represents a greater problem for moderate/mildly retarded individuals than for severe/profoundly retarded persons, which does not support extending the inverse relationships between IQ and prevalence of obesity, as reported by Kreze et al. (1974), to the retarded population. An obese condition quickly assumes problematical proportions when considering the well-documented health risks associated with it (Van Itallie, 1979). Administrators and health care personnel should begin to take a closer look for evidence of obesity among their clientele, as should parents. From our sample, the increase in weight problems found between 18 and 24 years of age and 25 and 34 years may suggest a good time for preventative intervention efforts. Treatment technologies are available for retarded individuals (Rotatori & Fox, 1981).

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