Prevalence of mental retardation among children in Saudi Arabia

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معدل انتشار التخلّف العقلي بين الأطفال في السعودية

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الخلاصة: لقد أظهر هذا المسح معدل انتشار التخلّف العقلي في الأطفال وتوزّعه في مختلف مناطق المملكة العربية السعودية. فقد تم تحليل المعطيات التي حصلنا عليها من مسح وطني مرتكز، خلال الفترة ما بين 1996 و1999، حيث تم فحص 60 630 طفلاً دون سن الثامنة عشرة باستخدام اختبارات حاصل الذكاء والاستبيانات التي قام باستيفائها الأطباء. وقد ثبت أن معدل انتشار التخلف العقلي يصل إلى نحو 8.9 بين كل 1000 طفل. وقد وجدنا معدلات شبيهة في بلدان أخرى. وتم تصنيف التخلف بأنه وخيم أو معتدل عند 70.9٪ من هؤلاء الأطفال. وثبت أن نحو 83.2% من الأطفال المتخلفين عقلياً في الشريحة العمرية بين 5 و18 سنة لم يلتحقوا بمدارس. وبالتالي فلابد من وجود برامج تعليمية خاصة من أجل تحسين نوعية حياة الأطفال المتخلفين عقلياً.

ABSTRACT This survey determined the prevalence and regional distribution of mental retardation among children in Saudi Arabia. Data were analysed from a population-based national survey conducted during 1996–99, in which 60 630 children aged up to 18 years were screened using IQ tests and questionnaires completed by physicians. The prevalence of mental retardation was 8.9 per 1000 children, a rate similar to that reported in other countries. Moderate or severe retardation was classified in 70.9% of these children. Of the mentally retarded children in the 0–18 years age range, 83.2% were not attending school. Special educational programmes are needed to improve the quality of life of mentally retarded children.

Prévalence de l'arriération mentale chez les enfants en Arabie saoudite

RESUME Cette enquête a déterminé la prévalence et la distribution régionale de l'arriération mentale chez les enfants en Arabie saoudite. On a analysé les données d'une enquête nationale au niveau de la population réalisée pendant la période 1996-1999, dans laquelle 60 630 enfants âgés de 0 à 18 ans ont fait l'objet d'un examen à l'aide de tests de QI et de questionnaires remplis par des médecins. La prévalence de l'arriération mentale était de 8,9 pour 1000 enfants, taux similaire à celui notifié dans d'autres pays. L'arriération a été classifiée modérée ou grave chez 70,9 % de ces enfants. Parmi les enfants atteints d'arriération mentale dans la tranche d'âge 0-18 ans, 83,2 % n'étaient pas scolarisés. Des programmes éducatifs spéciaux sont nécessaires pour améliorer la qualité de vie des enfants atteints d'arriération mentale.

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Introduction

Mental retardation is one of the most frequently encountered, and most distressing, disabilities among children in industrialized [*1,2*] and developing countries [*3–10*]. Table 1 shows how the prevalence of mild and severe mental retardation varies in different countries, ranging from 3.4 per 1000 to 84.0 per 1000. The etiological factors underlying the development of mental retardation also vary across different populations [*1–13*], although a strong association with low socioeconomic status has been shown [*1,11*].

Defects that may lead to mental retardation involve a lesion or lesions in the central nervous system (CNS) of diverse etiology, including genetic, nutritional, infectious, toxic, traumatic, and comorbid brain disorders. The lesions can give rise to various clinical expressions such as cerebral palsy, seizures, and hearing and vision impairment [*12–15*].

Although cases of mental retardation are frequently encountered in Saudi Arabia, particularly in paediatric clinics, there have been no epidemiological studies undertaken to determine the magnitude of the problem and its pattern of distribution. We initiated a comprehensive national community survey covering various regions within Saudi Arabia to identify the prevalence and distribution of mental retardation in the country.

Methods

A population-based national epidemiological survey was conducted throughout Saudi Arabia during 1996–99. Cluster sampling was carried out based on the geography and population density of each region. There was a balance between town and village representation in the survey, which targeted 10% of the total population for sampling according to a standardized procedure.

A team comprising a teacher, nurse and/or social worker visited each designated household on a mutually agreed day. Using an interview format, parents were asked

Table 1 **Prevalence per 1000 population of mild and severe mental retardation in selected studies**

Country	Year of study	Age range (years)	No. of persons screened	Prevalence per 1000
Bangladesh	1993	2–9	Not recorded	20.3
England	1988	7–11	11 991	7.5
Finland	1995	8–9	12 882	13.8
Finland	1985	14	12 085	11.9
Italy	1990	6–13	26 494	3.4
Norway	1998	10–12	30 037	6.2
Pakistan	1998	2–9	6 365	84.3
Sweden	1981	8–12	24 498	6.7
Sweden	1977	5–19	40 871	8.1
USA	1995	10	89 534	12.0

Source: Modified from references [1–13].

questions from a specially designed questionnaire about each of the children in their care under the age of 18 years. The questionnaire included information on previous medical history and included a scoring system for various types of disability. Nutrition status was assessed by comparing the child's height and weight with standards for the age group.

For mental retardation, the initial detection scoring criteria included: whether the child was independent (no = 0; yes = 3 points); whether the child found it difficult to recognize people familiar to him/her (no = 0; yes = 2 points); and whether the child had any disability or dermal pigmentation (no = 0; yes = 2 points). Those who scored an aggregate mark of 3 and those with a previous diagnosis of mental retardation were considered as possible cases, and were referred for routine physical and clinical examinations, and IQ assessment. All patients who were referred for IQ assessment attended and were subsequently followed up. The Revised Wechsler Intelligence Scale for Children (WISC-R) and the Stanford Binet Intelligence Test were used to assess IQ [*16,17*]. An IQ of 55–69 was considered indicative of mild mental retardation; 40–54 moderate and 25–39 severe mental retardation.

Results

Of the 60 630 children screened in households across different regions of Saudi Arabia, 46.8% (28 354) were females and 53.2% (32 276) males. Children aged < 5 years accounted for 22.0% (1338) of the survey population; 5–10 years 34.6% (20 978); > 10–15 years 32.3% (19 584); and > 15 years 11.1% (6730).

A total of 540 children were diagnosed with mental retardation, giving an overall prevalence of 8.9 per 1000 children sampled. Table 2 shows the prevalence of mental retardation on a regional basis, ranging from 6.0 per 1000 to 10.4 per 1000 for different provinces of the country.

Using IQ as the basis for categorization, 157 (29.1%) of the children had mild, 189 (35.0%) moderate and 194 (35.9%) severe mental retardation, giving population prevalences of 2.6, 3.1 and 3.2 per 1000 population for mild, moderate and severe retardation respectively.

Table 3 shows the demographic data of children with mental retardation. The majority (70.0%) were in the 5–15 year age group. Most (83.2%) of the retarded children were not attending school. At the time of the birth of the retarded child, 44.1% of the mothers were aged under 25 years.

From the medical history, possible factors predisposing to mental retardation were classified as follows: meningitis (15.3% of cases), cerebral palsy (13.5%), Down syndrome (12.2%), mother's exposure to X-rays (8.0%), hydrocephalus (5.4%), brain trauma (4.5%), unknown etiology (41.1%).

Table 2 **Total number of children studied and the prevalence per 1000 children of mental retardation by province of Saudi Arabia**

Province	No. studied	No. with mental retardation	Prevalence per 1000
Northern	9 248	55	6.0
Southern	12 554	103	8.2
Eastern	7 400	61	8.2
Western	15 061	156	10.4
Central	16 367	165	10.1
Total	60 630	540	8.9

Table 3 **Selected characteristics of children with mental retardation in Saudi Arabia**

Variables	Children with mental retardation	
	No.	%
Age (years)		
< 5	81	15.0
5–10	205	38.0
> 10–15	173	32.0
> 15	81	15.0
Attending school		
Yes	91	16.9
No	449	83.2
Mother's age at the time of child's birth (years)		
< 25	238	44.1
25–30	95	17.6
> 30–35	105	19.4
> 35	102	18.9

Discussion

Mental retardation is a disorder characterized by low scores on tests of mental ability, limited ability in aspects of daily living and significantly below-average social and communication skills. This equates to a 'below average' IQ of less than 70 [*1*]. Further classification into mild, moderate and severe mental retardation is based on IQ ranges of 55–69, 40–54 and 25–39 respectively. In general, the majority of children (85%), tend to fall into the mild mental retardation group, 10% the moderate and 5% the severe group [*18–20*].

We found that mental retardation occurred in 8.9 per 1000 of the Saudi child population, and more than two out of three of these children were classified as having moderate or severe mental retardation. In the United States of America (USA), it is estimated that 12 per 1000 children have mental retardation, i.e. 6.2–7.5 million per total population [*21*]. In China, it was estimated in 1987 that in children under 14 years, the overall prevalence rate of disability was 2.66% and mental retardation was the most frequent childhood disability [*2*].

In developing countries the overall prevalence of mental retardation varies considerably [*3–7*]. In the different provinces of Saudi Arabia, the childhood prevalence of mental retardation ranged from 6.0 per 1000 to 10.4 per 1000. Compared with similar studies reported from other populations, the prevalence of mental retardation in Saudi Arabia is similar to that reported in England, Finland, Sweden, USA and Norway, but lower than in other developing countries (Table 1). These findings may be attributed to better prenatal and neonatal care, and to diagnostic approaches that identify disorders at an early stage and facilitate appropriate early intervention. However, further study is required on the possible etiological factors that may lead to the development of mental retardation.

The results showed that 83.2% of the children were not attending school. One reason for this is likely to be the lack of suitable educational programmes. This points to a need to provide special education programmes tailored to the specific requirements of affected children. Such programmes should be linked in to the wider Saudi education system. There is also a need to provide psychological and other support services to both the children affected and the families caring for them. Recruitment of skilled personnel and the provision of appropriate training for workers in the fields of care and rehabilitation are also required.

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Mental retardation

It is estimated that the overall prevalence of mental retardation is between 1% and 3%. It is more common in developing countries because of higher incidence of injuries and deprivation of oxygen at birth and early childhood brain infections, all of which cause retardation.

Mental retardation can be prevented. Actions to prevent retardation include:

- Iodization of salt to prevent iodine-deficiency mental retardation;
- Abstinence from alcohol by pregnant women to avoid fetal alcohol syndrome;
- Dietary control to prevent mental retardation in people with phenylketonuria;
- Environmental control to prevent mental retardation due to poisoning from heavy metals such as lead;
- Prenatal genetic testing to detect certain forms of mental retardation such as Down Syndrome.

Treatment goals include:

- Early recognition and optimal utilization of the intellectual capacities of the individual by training, family education and support;
- Vocational training and opportunities for work in protected environments;
- Training of parents to act as teachers and trainers of daily life skills;
- Support groups for parents.

Source: WHO Fact sheet No. 265