

## **Epidemiological Study Of The Childhood Disabilities: A Household Survey In Four Egyptian Governorates**

***E. A. El-Moselhy; R. M. El-Azab; H. O. Khalifa; E. S. Abd-Allah\*;  
A. M. Ebrahim \*\*; H. M. El-Masry\*\*\*; T. S. El-Shorbgy\*\*\*\*and  
H. S. Abo Seif\*\*\*\*\****

Departments of Community and Industrial Medicine; Community Health Nursing\*; Psychiatry  
\*\*; Paediatrics\*\*\*; ENT\*\*\*\* and Ophthalmology\*\*\*\*\*  
Faculty of Medicine and Nursing, Al-Azhar and Zagazig University

### **Abstract**

This study was conducted on 1403 children from four Egyptian governorates. These governorates were; Alexandria, Al-Behira, Cairo and Al-Giza. The aim of the study was to define different types of the childhood disabilities, to find out their prevalence's in the selected governorates in Egypt, to define their distribution and to define their risk factors. A cross-sectional study design was chosen to investigate the current research problem. All the children had undergone complete physical examinations. Also, children's parents were interviewed. There were specific inclusions criteria have been considered to include the child as a case in the study. The overall prevalence of the childhood disabilities in these governorates was 8.8%. The most common prevalent childhood disabilities were; visual, speech and hearing (4.5%, 2.1% and 1.9%, respectively). While, the most common prevalent risk factors were mother delivered at home and/or not received antenatal care (7.2% and 6.3%, respectively). Positive consanguinity and baby not strictly received vaccination were the most important risk factors, odds ratio = 3.81 and 3.31, respectively. While, only positive consanguinity was significantly correlated with all types of the childhood disabilities. Furthermore, positive consanguinity had the highest correlation with all types of the childhood disabilities. Also, childhood disabilities tend to be common among males (57.6%) and of congenital aetiology (61.8%). The main source of habilitation was the private centers (79.2%).

### **Introduction**

With a dramatic decrease in infant mortality, a challenge facing modern medicine is chronic disabling conditions in infants and young children (Chen and Simeonsson, 1993). Childhood disability is a major health problem that is pronounced in developing countries (Shawky *et al.*, 2002). Disability according to estimates of the United Nations affect lives of more than 600 million people globally. This means that about 10.0% of the world's population is disabled. Looking only at developing

countries, the numbers are expected to be much higher. Difficult conceptual issues as well as social and cultural differences have inhibited the collection of the data needed to properly estimate the prevalence of disability in the world especially in developing countries. International efforts are now underway to improve the quality and availability of data about disability (WHO, 2004).

In Egypt, prevalence of childhood disability was estimated to be about 8.0%,

i.e., there are about 2.5 million children aged less than 18 with one or more physical or mental disabilities. During nineties 28.000 children were enrolled in special education classes, but this represent only about 5.0% of them (UNDP, 2004).

The WHO has developed the international classification of disability and handicaps (ICDH) since 1980. Disability was defined as any restriction or lack of ability (resulting from an impairment) to perform an activity in the manner or within the range considered normal for a human being. Impairment was defined as any loss or abnormality of psychological, physiological, or anatomical structure or function. While, handicap, resulting from an impairment or disability, was defined as that limits or prevents the fulfillments of a role that is normal (depending on age, sex, social and cultural factors) for that individual (WHO, 1980).

Research on factors contributing to disability indicates the complexity of the problem. Disability may result from congenital or acquired causes and it may be obvious at birth or may appear later in life. The causative factors leading to disability are heterogeneous and complex and their contribution in producing disability may differ in different populations. Furthermore, the aetiology of a substantial percentage of disability remains unknown (Gortmaker & Sappenfield, 1984; Chen & Simeonsson, 1993 and El-Hazmi, 1997). The aetiological factors in the development of disability may be present at preconception, prenatal, natal and postnatal period. As disability is chronic in nature, its early detection, early care and management may arrest the disability process or ameliorate the complications resulting from the disabling process. The detection or diagnosis takes into consideration the aetiological factors and separate protocols are followed depending on whether the disability is congenital or acquired (Roubertie *et al.*, 2004). Efforts to prevent developmental disabilities among children can be classified in terms of primary, secondary and tertiary activities

(Chen & Simeonsson, 1993 and El-Hazmi, 1997).

This study will spot the light on the prevalence, distribution and nature of the different disabilities among children. Identification of disabilities is considered as a basic need for primary prevention of disability among children.

### **Study Objectives:**

#### **General Objective:**

- To prevent and control childhood disabilities in Egypt.

#### **Specific Objectives:**

- To define different types of childhood disabilities and to find out their prevalence's in the selected governorates in Egypt.
- To define distribution of different types of the childhood disabilities.
- To define risk factors of different types of the childhood disabilities.

### **Subjects And Methods**

**Research Setting:** This study was conducted in four governorates of Egypt: Alexandria (east district), Al-Behira (some Damnhour's villages; Desos om dinar, Al-Abaadia and Nediba), Cairo (east district; Al-Matrya and Al-Mrg and south district; Ezzbet Khayrallah and Albasateen) and Al-Giza (Manial Sheha, Tamouh, Zawyet Abo musllam, Nazlet Alashtar and Kaseb villages). These governorates and areas were chosen purposively as there were facilities in examining the studied children and interviewing their parents (N.B. PLAN International Organization, a non-governmental organization is working with these families in the previously mentioned areas).

**Research Design:** A cross-sectional analytical research design was chosen to investigate the current research problem. A pilot study was carried out on 130 children during the first three months to help in the finalization of the research instruments and forms as well as the finalization of the study design. It was guided by the following tasks:

- i. Testing the form design, content and language at the study sites.

- ii. Measuring the time and resources needed for the fieldwork.

**Sample Design:** Equation for sample size was applied and calculated based on the following data; prevalence of the childhood disabilities in Egypt (about 8.0%) according to the report of UNDP (2004) and margin of sampling error tolerated (2.0%). So, the resulted sample was 708 and to avoid sample size bias the total sample was increased to reach 1403 children. The selection of children from each governorate was done by simple random sampling technique to be as follows: Alexandria (287), Al-Behira (148), Cairo (695) and Al-Giza (273). The following inclusion criteria have been considered during selection of the studied children:

- i. Age up to 18 years.
- ii. Only from the previously mentioned areas and families.

All children had undergone complete physical examinations. Children's parents, also, were submitted to an interview.

**Diagnosis of childhood disabilities:**

The following diagnostic criteria have been considered a basic prerequisite to include the child as a case in the study:

**1. Visual disability:**

- i. Previously diagnosed as a case of visual disability (blind, with aided acuity of vision <1/60 or weak sight, with aided acuity of vision <6/18).
- ii. Discovered to be as a case of visual disability during our examination by the visual acuity chart (broken C, letter or illiterate) or by the colored rotating drum for preferential looking for babies.

**2. Hearing disability:**

- i. Previously diagnosed as a case of hearing disability (deaf or hearing impaired).
- ii. Discovered to be as a case of hearing disability during our examination by a portable audiometer (Bosch Telecom). Degree of hearing loss was made according to Gelfand (2004) scale:

Degree of hearing loss	dB range
Mild/moderate loss	> 20 – 55dB
Severe/profound loss	>55 – > 90dB

**3. Speech disability:**

- i. Previously diagnosed as a case of speech disability (stammer, stutter ...etc.).
- ii. Discovered to be as a case of speech disability during our examination.

**4. Motor disability:**

- i. Previously diagnosed as a case of motor disability (upper and/or lower motor neuron lesion).
- ii. Discovered to be as a case of motor disability during our examination.

**5. Mental disability:**

- i. Previously diagnosed as a case of mental disability (mental etardation, autism, epilepsy ...etc.)
- ii. Discovered to be as a case of mental disability during our examination.

**6. Multiple disabilities:**

- i. Previously diagnosed as a case of multiple disabilities (have one or more of the previously mentioned disabilities or as in cerebral palsy (CP) and other associated syndroms)
- ii. Discovered to be as a case of multiple disabilities during our examination.

**Data Collection and Statistical Analysis:**

In coordination with PLAN, we visited the homes to run the study. The parents of the children were briefed on the objectives of the study and how it will be administered. A verbal consent from the children's parents to participate in the study was taken. Other ethical issues were considered. The collected data were statistically managed. The chi-square ( $\chi^2$ ), odds ratio (OR) with 95% confidence interval (CI) or exact confidence limits (ECL), correlation coefficient (r) and stepwise regression analysis were used as tests of significance. The significance level for  $\chi^2$  and r and were accepted if the P-value  $\leq 0.05$ .

**Results And Discussion**

This study, (table 1) demonstrated the prevalence of the childhood disabilities and their risk factors in different studied locations. It was clear that 124 (8.8%) of the

studied children had different types of disabilities. Andersen *et al.* (1990) cleared that at age four, 1.1% of children had disabilities. Chen and Simeonsson (1993) stated that the overall prevalence of childhood disabilities was 2.7% among China's children. Janson and Dawani (1994) found that 7.8% of children had a disability or a chronic disease. Ansari and Akhadar (1998) showed 4.7% prevalence of impairments in Saudi Arabian children less than 15 years. MOLISA (1998) reported that prevalence of childhood disability was 3.1% among children aged 0-17 years old, in Vietnam. While, in Egypt, prevalence of childhood disabilities was estimated to be about 8.0% among children aged less than 18 (UNDP, 2004). The lowest figure (1.1%) can be explained, small age of the children and developed country, Denmark. In this study, the highest percentages of disabilities were found in Alexandria and Cairo, 9.4% for both. At the same time, the total number of disabilities in all studied areas was 144 (10.3%). Again, the highest percentages were found in Alexandria (12.9%) and Cairo (10.1%). As regard visual disability, there were 63 (4.5%) children. MOLISA (1998) found, 0.61% prevalence of visual disability. Khandekar and Abdu-Helmi (2004) reported, 4.1% prevalence of myopia in Oman school children. While, the prevalence of amblyopia was 0.3%. Also, Nasir *et al.* (2004) cleared that 2.0% of the children in Afghanistan were visually handicapped. In this study, the highest percentages of visual disability were found in Cairo (6.2%) and Alexandria (3.5%). Khandekar and Abdu-Helmi (2004) stated that regional variation in myopic trend was marked. Regarding hearing disability, there were 27 (1.9%) children. MOLISA (1998) found, 0.4% prevalence of hearing disability. Again, Nasir *et al.* (2004) cleared that 9.0% of children had hearing impairment. Our result comes between the previously mentioned figures. The highest figure (9.0%) could be explained, underdeveloped country, Afghanistan. At the same time, the highest percentages of hearing disability were found in Cairo

(2.2%) and Alexandria (2.1%). As regard speech disability, there were 30 (2.1%) children. MOLISA (1998) found, 0.89% prevalence of speech disability. Broomfield and Dodd (2004) clarified that prevalence of children who had speech and language disability was 14.6%. This higher figure could be explained, co-morbid speech and language defects. The highest percentage of speech disability was found in Alexandria (4.2%). While, motor disability was found among 9 (0.6%) children. Roubertie *et al.* (2004) showed that movement disorders are not uncommon in childhood. Andersen *et al.* (1990) cleared that 5.1% of children had motor handicap. MOLISA (1998) found, 0.93% prevalence of motor disability. Nasir *et al.* (2004) found that 25.0% of children had delayed physical and mental development. In this study, the highest percentage of motor disability was found in Al-Giza (1.1%). Regarding mental disability, there were 15 (1.1%) children. Andersen *et al.* (1990) clarified that 7.0% of children had mental retardation. Chen and Simeonsson (1993) cleared that for children less than 14 years of age in China; the prevalence of mental retardation was 1.8%. Nasir *et al.* (2004) reported that 13.0% of children had CP and 52.0% of them had CP and mental retardation. Marlow *et al.* (2005) showed that cognitive impairment was present in 21.0% of the children born extremely preterm, this value rose to 41.0% when the results were compared with those for their classmates. This study (table 1), revealed that the highest percentage of mental disability was found in Alexandria (2.4%). Lastly, multiple disabilities were found among 20 (1.4%) children. MOLISA (1998) found that the average number of disabilities in child with disabilities was 1.2. In this study, the highest percentage of multiple disabilities was found in Alexandria (3.5%). Nasir *et al.* (2004) cleared that regional variation in disabilities was obvious. At the same time, 60 (4.3%) of the studied children their parents had a positive consanguinity history. Nasir *et al.* (2004) showed that 46.0% of the disabled children were born from parents who are first cousin.

Abu-Rabia and Maroun (2005) stated that results indicated that the rate of disabilities among children of first cousin parents was higher than that of with children of second cousin parents, distantly related parents, or unrelated parents. It has been suggested that results provide new evidence for a genetic basis to disabilities. In this study, the highest percentages of positive consanguinity were found in Al-Behira (7.4%) and Alexandria (5.6%). Also, 89 (6.3%) of the studied children their mothers did not receive antenatal care. Again, Nasir *et al.* (2004) showed that 58.3% of the disabled children were born from parents who lack antenatal care. Also, the highest percentages were found in Al-Behira (8.8%) and Alexandria (6.6%). While, 101 (7.2%) of the studied children their mothers delivered them at home. Again, the highest percentages were found in Al-Behira (8.8%) and Alexandria (7.3%). Lastly, 25 (1.8%) of the studied children did not strictly receive vaccination. Smith *et al.* (2005) stated that the incidence of acquired sensorineural hearing loss (SNHL) in children has fallen as a result of the widespread implementation of immunization programmes. The highest percentages of children who did not strictly received vaccination were found in Al-Behira (2.0%) and Cairo (1.9%).

As regard distribution of the disabled children in different studied locations according to type of disability (table 2), 63 (50.8%) of them had visual disability. The highest percentages were found in Alexandria (37.0%) and Cairo (66.2%). Regarding hearing disability, there were 27 (21.8%) children. Hutchison and Gordon (2005) reported a close figure, 18.0 %. The highest percentages were found in Al-Behira and Cairo, 23.1% for both. While, speech disability was found among 30 (24.2%) children. Samuel *et al.* (1995) found speech disorders among 38.0% of their group of disabled children. Also, MOLISA (1998) found that prevalence of speech disability was 21.4%. While, Hutchison and Gordon (2005) reported a lower figure 14.0% the highest percentage was found in Alexandria (44.4%). Regarding motor disability, there

were 9 (7.3%) children. Hutchison and Gordon (2005) reported a close figure (8.0%). On the other hand, Samuel *et al.* (1995) and MOLISA (1998) reported higher figures, 16.0% and 22.4% of their group of disabled children, respectively. The highest percentage was found in Al-Giza (15.8%). As regard mental disability, there were 15 (12.1%) children. Chen and Simeonsson (1993) clarified that mental retardation was accounts for 66.0% of all disabled children, the most frequent childhood disability. Samuel *et al.* (1995) found global developmental delay among 20.0% of their group of disabled children. The highest percentage was found in Alexandria (25.9%). Lastly, multiple disabilities were found among 20 (16.1%) children. The highest percentage was found in Alexandria (37.0%). At the same time, 60 (48.4%) of the studied children their parents had a positive history of consanguinity. Janson & Dawani (1994) and Durkin (2002) stated that consanguinity was an important risk factor for childhood disabilities. The highest percentages were found in Al-Behira (84.6%) and Alexandria (59.3%). Also, 89 (71.8%) of the studied children their mothers did not receive antenatal care. The highest percentages were found in Al-Behira (100.0%) and Al-Giza (73.7%). While, 101 (81.5%) of the studied children their mothers delivered them at home. The highest percentages were found in Al-Behira and Al-Giza, 100.0% for both. Lastly, 25 (20.2%) of the studied children did not strictly receive vaccination. The highest percentages were found in Al-Giza (26.3%) and Al-Behira (23.1%).

As regard distribution of the disabled and non-disabled children according to presence of some risk factors among them (table 3), 48.4% and 20.0% of the disabled and non-disabled, respectively had a positive history of consanguinity (OR=3.75, 95% CI: 2.52-5.56). Abu-Rabia and Maroun (2005) stated that results provide new evidence for a genetic basis to disability. While, 71.8% and 54.7% of mothers of the disabled and non-disabled, respectively not received antenatal care (OR=2.11, 95% CI: 1.38-

3.23). Larsson. et al. (2005) showed that there was no significant association between risk of autism and number of antenatal visits. Also, 81.5% and 62.6% of mothers of the disabled and non-disabled, respectively delivered them at home (OR=2.62, 95% CI: 1.61-4.30). Lastly, 20.2% and 5.6% of the disabled and non-disabled, respectively not strictly received their vaccination (OR=4.30, 95% CI: 2.53-7.27). Smith et al. (2005) supported our result.

Regarding distribution of the disabled and non-disabled children in different studied locations according to presence of some risk factors among them (table 4), 14.8% and 0.8% of the disabled and non-disabled, respectively in Alexandria not strictly received their vaccination (OR=22.43, 95% ECL: 2.96-253.76). Also, 84.6% and 16.3% of the disabled and non-disabled groups, respectively in Al-Behira had a positive history of consanguinity (OR=28.25, 95% ECL: 5.43-270.34). While, 20.0% and 4.0% of the disabled and non-disabled, respectively in Cairo not strictly received their vaccination (OR=6.05, 95% CI: 2.74-13.22). Lastly, 52.6% and 20.1% of the disabled and non-disabled, respectively in Al-Giza had a positive history of consanguinity (OR=4.42, 95% CI: 1.56-12.62).

As regard correlation coefficient between risk factors and occurrence of different disabilities among the disabled children (table 5), a positive history of consanguinity was the only significant risk factor ( $P=0.00$ ) regarding occurrence of visual disability. Al-Salem and Rawashdeh (1992) supported our result and stated that parental consanguinity in those with genetically determined causes of visual impairment was high compared with those with nongenetic causes (79% vs. 33.3%,  $P<0.05$ ). Tabbara *et al.* (2005) showed that the incidence of consanguinity among parents of children with acquired causes of visual disability was 3.0% compared to 38.0% among genetically determined causes ( $P<0.001$ ). While, a positive history of consanguinity and the mother not received antenatal care were the only significant risk

factors ( $P=0.02$  and  $0.03$ , respectively) regarding occurrence of hearing disability. Shawky *et al.* (2002) showed that a consanguineous marriage was shown to put the mother at higher risk of having an auditory disabled child. Feinmesser *et al.* (1989) cleared that the rate of consanguinity among the parents of hearing-impaired children was much lower in their survey than in the earlier one. They assumed that there is a better understanding of the genetic risk in consanguineous unions, especially when a disability such as hereditary deafness is involved. Ganga *et al.* (1991) demonstrated that consanguinity was observed in 65.4% parents of deaf children, 23.1% had one or more affected sibling and 14.1% had affected relatives. Smith *et al.* (2005) mentioned that during the past decades the incidence of acquired SNHL in children living in more developed countries has fallen. The overall decrease has been accompanied by a relative increase in the proportion of inherited forms of SNHL. These changes in the incidence of SNHL have not been seen in children living in less developed countries, where the prevalence of consanguinity is high in many areas and both genetic and acquired forms of SNHL are common, particularly among children who live in poverty. Also, Yoong *et al.* (2005) reported that consanguineous marriages were 86.4% among Pakistani children with deafness. While, a positive history of consanguinity was the only significant risk factor ( $P=0.04$ ) regarding occurrence of speech disability. Ganga et al. (1991) demonstrated that consanguinity was observed in 65.4% parents of dumb children, Larsson et al. (2005) showed that there was no statistically significant association between risk of autism and number of antenatal visits. While, a positive history of consanguinity and the mother not receive antenatal care and delivered at home were the significant risk factors ( $P=0.02$ ,  $0.03$  and  $0.01$ , respectively) regarding occurrence of motor disability. While, a positive history of consanguinity, the mother not receive antenatal care and delivered at home and the baby not strictly receive vaccination were

the significant risk factors ( $P=0.01$ ,  $0.03$ ,  $0.02$  and  $0.01$ , respectively) regarding occurrence of mental disability.

Regarding the stepwise regression analysis of risk factors and general characteristics determined occurrence of disability among the disabled children (table 6), positive consanguinity found to have the highest order (partial  $F = 2.6$ ) in occurrence of the disabilities among the studied children. Feinmesser *et al.* (1989); Ganga *et al.* (1991); Al-Salem and Rawashdeh (1992); Shawky *et al.* (2002); Abu-Rabia and Maroun (2005); Tabbara *et al.* (2005) and Yoong *et al.* (2005) supported our result. Regarding mother not receive antenatal care, we cleared that it has a correlation with occurrence of the disabilities among children (partial  $F = 1.9$ ). Shawky *et al.* (2002) conformed with our result. While, Larsson *et al.* (2005) did not find a significant relation between risk of autism and antenatal visits. Also, we showed that home delivery have the lowest correlation with occurrence of the disabilities among children (partial  $F = 1.6$ ). This result can be accepted and explained, as home delivery carries number of hazards to the mother and her infant, including disability occurrence. On the other hand, baby not strictly receives vaccination found to have a neutral correlation with occurrence of the disabilities among children (partial  $F = 1.4$ ).

Regarding distribution of the childhood disabilities in different studied locations according to general characteristics (table 7), 57.6% and 42.4% of the disabilities were found among males and females, respectively. Janson and Dawani (1994) found that boys were the majority. MOLISA (1998) reported that prevalence of childhood disability was more among male children. This finding may be the result of both lower risks among females for some specific disabilities and also possible under reporting of disabilities in female children. While, the highest percentages of the disabilities among males and females were found in Al-Giza (72.7%) and Cairo (52.9%), respectively. Regarding age,

17.4%, 63.2% and 19.4% of the disabilities were found among the age groups 0-6, 7-14 and 15-18, respectively. Chen and Simeonsson (1993) stated that the age specific prevalence rates showed an increase with age. While, the highest percentages of the disabilities in previously mentioned age groups were found in Al-Giza (31.8%), Alexandria (67.6%) and Al-Bhaira (26.7%), respectively. As regard cause of the disabilities, 61.8% and 38.2% were congenital and acquired, respectively. Costa *et al.* (1985) supported our result and stated that it is generally believed that 76.0% of disabilities caused by genetic factors. Andersen *et al.* (1990) cleared that perinatal damage alone was likely in only three children out of 45, two thirds had a prenatal cause or a combination of prenatal and perinatal causes. Al-Salem and Rawashdeh (1992) reported that genetic causes were responsible for the visual impairment in 77.7% of subjects in the group born after 1970 and for 67.0% in the group born before 1970. There was a statistically significant change in the overall pattern (genetic and acquired causes) of blindness between the two generations, and there was also a significant change in the pattern of acquired blindness alone. MOLISA (1998) found that the most prevalent type of childhood disabilities reported was the congenital birth defects (55.0%). Nasir *et al.* (2004) showed that 37.5% of the disabilities were present at birth. Also, Tabbara *et al.* (2005) noticed that genetically determined disorders were observed in 70.0% of children with bilateral blindness and in 56.0% of children with bilateral visual impairment. The incidence of consanguinity among parents of children with acquired causes was 3.0% compared to 38.0% among the genetically determined causes ( $P < 0.001$ ). On the other hand, Chen and Simeonsson (1993) mentioned that the aetiology of 47.0% of cases was unknown, 21.0% of cases resulted from damage prenatally, 3.0% were due to perinatal factors and 29.0% were acquired during infancy and early childhood. Woods *et al.* (2005) cleared that from 3719 discharged hospital patients, 0-20

years old in Colorado and Utah, adverse events, including disabilities, occurred in about 1.0% of them. The highest percentages of the congenital and acquired disabilities were found in Cairo (68.6%) and Al-Behira (46.7%), respectively. Regarding course of the disabilities, 80.6% and 19.4% of children had stationary and progressive course, respectively. The highest percentages of the stationary and progressive course disabilities were found in Alexandria (86.5%) and Al-Giza (27.3%), respectively. Regarding severity, 4.9% of children had severe disability. Janson and Dawani (1994) found that 2.6% of children were classified as moderately or severely affected. Samuel *et al.* (1995) noticed that 10.0% had severe disability. Ansari and Akhadar (1998) showed, 0.4% prevalence of severe impairments. As regard the main source of the habilitation care, 6.9%, 9.7%, 79.2% and 4.2% had community based habilitation, government habilitation center, private habilitation center and counseled traditional healer, respectively. The highest percentages of the community based habilitation, governmental habilitation center, private habilitation center and counseled traditional healer were found in Cairo (10.0%), Al-Giza (36.4%), Cairo (90.0%) and Alexandria (10.8%), respectively. Lastly, 68.1%, 20.8% and 11.1% of the disabled children were integrated in a school, kept at home and enrolled in a work, respectively. UNDP (2004) clarified that despite investment and a strong legal commitment by the government, disabled children in Egypt continue to suffer social stigmatization and very significant disadvantages, particularly in the area of education. While, the highest percentages of these disabled who integrated in a school, kept at home and enrolled in a work were found in Cairo (74.3%), Al-Giza (27.3%) and Alexandria (18.9%), respectively.

As regard distribution of different types of disabilities in all studied locations according to general characteristics (table 8), 52.4% and 47.6% of visual disability were found among females and males, respectively. MOLISA (1998) reported that

prevalence of visual disability was more common among males compared with females, 0.66% vs. 0.56%, respectively. Khandekar and Abdu-Helmi (2004) stated that the risk of low vision disability was significantly higher in male students than female. As regard hearing disability, 55.6% and 44.4% of hearing disabled children were males and females, respectively. Ganga *et al.* (1991) showed that boys were more often affected, 60.2%. Wake *et al.* (2004) found that 61.4% and 38.6% of their group with hearing loss were males and females, respectively. Also, 73.3% of the speech disability was found among males. Again, Ganga *et al.* (1991) cleared that boys were more often affected. Broomfield and Dodd (2004) clarified that the risk of speech disability was higher in males than females. At the same time, mental disability was more found among males, 66.7%. Samuel *et al.* (1995) found that developmental disorders were more prevalent in boys. Also, 61.9%, 66.7%, 56.7%, 77.8% and 66.7% of the visual, hearing, speech, motor and mental disabilities were found in 7-14 years age group, respectively. Khandekar and Abdu-Helmi (2004) reported that the rate of low vision disability was significantly higher among high age group ( $p < 0.00001$ ). Regarding cause of the disability, 85.7%, 18.5%, 40.0%, 55.6% and 86.7% of the visual, hearing, speech, motor and mental disabilities, respectively were congenital. Andersen *et al.* (1990) cleared that among the mentally retarded, in more than half, the damage occurred prenatally. Parving (1993) demonstrated that prenatal causes accounted for 55.0% of hearing disability. Molteno and Lachman (1996) showed that in 45.0% of cases the disability was prenatal in origin, in 17.0% perinatal, in 9.0% postnatal and in a quarter it was idiopathic. As regard severity, there were 2 (3.2%) and 1 (3.7%) children had severe visual and hearing disabilities, respectively. Andersen *et al.* (1990) cleared that at age four, 1.4% and 0.7% of children had severe visual and auditory defects, respectively. Ancel (2004) found that less than 4.0% of preterm infants developed severe hearing or visual loss and about 0.5-



8.6% developed CP. Smith *et al.* (2005) cleared that the incidence of acquired and inherited SNHL was common in children living in developing countries, where the prevalence of consanguinity was high. Also, Yoong *et al.* (2005) reported that congenital infections or dysmorphic features were more common than post-meningitis deafness, 5.0% and 1.4%, respectively among Pakistani children. Regarding mental disability, 93.3% of cases were severe. Andersen *et al.* (1990) found that severe mental retardation was 41.4%. Yaqoob *et al.* (2004) cleared that in 22.0% of the cases the onset of mild mental disability was prenatal, 28.0% of the cases during the postnatal period and in a substantial proportion of the cases (50.0%) the cause could not be traced. Also, Yaqoob *et al.* (2004) showed that the overall prevalence of mild mental disabilities was 6.2%. As regard educational or work opportunities, only 50.0% of the children with speech disability were integrated in school, although 23.3% of them were in the school age. Schuler (2004) observed that children with speech disabilities were at risk for reading and writing disabilities. UNDP (2004) cleared that disabled children in Egypt continue to suffer very significant disadvantages, particularly in the area of education.

It could be concluded that childhood disabilities is an important public health problem. Its overall prevalence was 8.8%. The most common prevalent childhood disabilities were visual, speech and hearing. Positive consanguinity and baby not strictly

received vaccination were the most important risk factors. While, only positive consanguinity was significantly correlated with all types of the childhood disabilities. Furthermore, positive consanguinity had the highest order of correlation with all types of the childhood disabilities. Identification and appreciation the role of risk factors for childhood disabilities may ultimately lead to improve preventive strategies and decrease burden of the childhood disabilities either physically or psychologically. Also, financial burdens for direct medical cost and lost of productivity will decrease. Certain modifiable maternal risk factors affecting child health still exist in our community, such as consanguineous marriages. Establishment of vaccination programmes for several vaccine-preventable infectious diseases would reduce rates of acquired and permanent disabilities in survivors. Also, childhood disabilities tend to be more common among males, of congenital aetiology and the main source for habilitation was the private centers. It could be recommended that more work should be carried out on a big sample size of population all over Egypt to obtain not only the prevalence of childhood disabilities but also all socioeconomic and health characteristics of disabled children, causes of disability, available services...etc. Also, the need for a strong national childhood disabilities prevention and control strategy and the integration of childhood disabilities preventive and curetive services into the health facilities that women and child use.











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## دراسة وبائية للإعاقات في مرحلة الطفولة: مسح منزلى في أربع محافظات مصرية

عصام عبد المنعم المصيلحي- رائد محمد العزب- حامد عمر خليفة- إيمان شكرى عبد  
الله\*-

عبد الكريم ابراهيم \*- حسنى محمد المصري\*\*\*- طارق سليمان الشوربجى\*\*\*-  
حسام الدين سعد أبو سيف\*\*\*

طب المجتمع وطب الصناعات- تريض طب مجتمع\*- الطبى النفسى\*- طب  
الأطفال\*\*\*-

الأنف والأذن والحنجرة\*\*\*- طب العيون\*\*\*

أجريت هذه الدراسة على 1403 طفل في أربع محافظات مصرية هي الاسكندرية والبحيرة والقاهرة والجيزة . وكان الهدف من هذه الدراسة هو تحديد مختلف أنواع الإعاقات فى مرحلة الطفولة وإيجاد معدل انتشارها وتوزيعها وتحديد عوامل خطورتها فى تلك المحافظات. وقد اختير تصميم الدراسة المقطعية لاستقصاء هذه المشكلة البحثية. وقد أخضع كل الأطفال للفحص الطبى الكامل وكذلك تم مقابلة كل آباء الأطفال. وقد وضعت خصائص محددة لانضمام الطفل كحالة فى هذه الدراسة. وقد بينت الدراسة ما يلي: كان معدل الانتشار الكلى للإعاقات فى مرحلة الطفولة فى تلك المحافظات هو 8.8%. وكانت أكثر الإعاقات انتشارا هى البصرية والتخاطب والسمعية (4.5% ، 2.1% ، 1.9% على الترتيب). بينما كانت أكثر عوامل الخطورة انتشارا هى ولادة الام بالمنزل وعدم رعاية الام أثناء الحمل (7.2% ، 6.3% على الترتيب). وكان أهم عوامل الخطورة هو كون الأبوين أقارب وعدم إعطاء الطفل التطعيمات بدقة (نسبة أودز = 3.81 ، 3.31 على الترتيب). ويعتبر زواج الأقارب أهم عوامل الخطورة كما أن له ارتباط ذو دلالة مع كل أنواع الإعاقات. وفوق ذلك كان كون الابوين أقارب له أعلى ارتباط مع كل أنواع الإعاقات. وقد اثبتت الدراسة أن كل إعاقات الأطفال تميل لأن تكون أكثر شيوعاً بين الذكور (57.6%) وبسبب عيوب خلقية (61.8%) كما وجد أن المصدر الرئيسى للتأهيل هو مراكز التأهيل الخاصة (79.2%)