Original Article

The prevalence and trends of mental retardation in Iran (2006-2011)

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ABSTRACT

The aim of the study was to define spatial distribution and prevalence of mental retardation in all the provinces of Iran. First, mental retardation prevalence in different states was drawn using GIS plan in 2006 and 2011. Then, mental disorders percentage and also prevalence were calculated according to age, gender and accommodation. Findings showed that mental retardation prevalence has increased in most of the states in recent years and the most cases were observed among people aged 15 to 29 years. Moreover, mental retardation prevalence rate during recent 5 years has increased from 0.42 to 0.44 % of population. We concluded that identifying high risk regions and effective social factors limit services for real needs to decline occurring and prevalence of disability.

Keywords: Mental retardation, prevalence, spatial distribution, iran

Introduction

Mental retardation (MR) is a kind of disability because of special physiologic situations, disability in doing personal things and routine activities, misunderstanding of situations, disability in doing personal activity and needing for help. Also they need training, hygiene, remedy, entertainment, healthcare and special facilities and services. Increasing trend of disability would cause incline of need and demand for sources and services, so the more the degree of disability, the more services and sources need [1].

However, persons should have 3 following characters, apart from having low intelligence and the IQ lower than 70, to accounted for MR: 1) Not being able to learn as fast as other normal persons, 2) Not being able to save and gather information and 3) Not being able to use learnt information in the same situations [2]. Mental retardation is a prevalent disease world wild. 2-3 percent of the population has IQ lower than 70 which 0.3 % of them suffered from severe mental retardation [3, 4]. Disability will affect the quality of life in a family and have some pressure on it. In addition, government should cost much for caring and supporting them. However, the effective factors for becoming disabled vary among different lands based on economic, social, cultural and ecological situations, and identifying trend changes of disease [5]. Also its prevalence in gender and age subgroups and defining spatial distribution play an important role in its management and control, so this study was performed to define spatial distribution and to calculate MR prevalence in different regions of country during 2006 to 2011.

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Materials and Methods

This is a descriptive study that the data related to the whole population were obtained from the national center of statistics. The data related to MR were obtained from the welfare organization of Hormozgan province. The MR data included all types of mental disorders. Briefly, disabled persons or their parents refer to welfare organization and fill out an application form. Then they will be investigated in a medical commission. If the commission verify their disabilities, then they would be divided into mild, moderate, sever and greatly sever groups. The prevalence of MR in each province was depicted using GIS mapping in 2006 and 2011. To estimate the prevalence of MR in each state, the numbers of MR were divided by the total number of population in the same year. So, country's low risk and high risk regions can be identified using GIS mapping. Also MR percentage divided by age, gender and residence location was calculated. For doing that, we divided number of MR in each subgroup of age, gender and residence location by whole

number of mental disorder of that age, gender and residence location group. Furthermore, for defining the percentage of whole MR of age and residence location subgroup, we divided the entire disabled persons in this group (sum of column) to all the MR population (total sum). Finally, MR prevalence rate according to age, gender and residence location was calculated. For this calculation, number of MR in each of mentioned changeable subgroups, we divided this data to whole population in that subgroup. These calculations were done by Microsoft Office Excel 2007, and maps depicted by ArcMap 9.3 GIS software by ESRI.

Results

Mental retardation prevalence rate in different states of country in 2006 and 2011 had been evaluated in figures 1 and 2. Figure 1 showed that in 2006, the highest prevalence rate of MR was seen in Gillian, Fars, Razavi Khorasan and south Khorasan. However, Tehran, Qazvin, Zanjan, Sistan, Kerman, Hormozgan, Lorestan and west Azerbaijan had the lowest prevalence rate in this year. Also, Gillian, Golestan, Khorasan provinces, Isfahan, Fars and Kohkiloyeh had the highest prevalence rate in 2011. Tehran and Hormozgan had the lowest prevalence in this year (Figure 2). Also MR in different states of country had increased during 2006 to 2011. Table 1 shows MR percentage in subgroups of age, gender and residence location in 2006 and 2011. Results in Table 1-A shows that the highest percentage in 2006 among male groups of village and city was 0.44 (age of 15-29) and among female groups was 0.43 and 0.41, respectively (age of 15-29). Also out of all cases of MR, 0.43% of cases were occurred in aged group of 15-29 year-old. In addition, out of all cases 0.4% was city males, 0.22% village one, 0.25% city females and 0.13 % village ones. Results of table 1-B declares that the highest percentage in 2011 among city and village males was 0.41% (age of 15 - 29) and among village and city females the highest percentage was 0.41 and 0.39 %, respectively (age of 15-29). Also out of all the MR, 0.41% was between ages of 15-29, and out of all mental retardation based on gender and residence location, 0.41% was city males, 0.2% village one, 0.26% city females and 0.13 % village ones. Table 2 shows mental retardation prevalence rate in subgroups of age, gender and residence location during 2006 and 2011. Table 2-A shows that in 2006 the highest prevalence rate among city and village males was 0.71% that was occurred in the ages above 70 and between 30-44, respectively. Among city and village females the highest rate was 0.82 and 0.6 % that was occurred in the ages above 75. Also last columns of 2-A shows mental retardation prevalence rate based on ages that the highest rate was 0.68 that was occurred in age above 75-year-old people. In addition, the last column of 2-A shows that the mental retardation prevalence rate was calculated based on gender and residence location that among city men was 0.48%, village ones 0.57, among city women 0.31 and villages ones 0.37 %. Also the mental disorders prevalence rate around Iran estimated 0.42 %. The results of table 2-B shows the mental retardation prevalence tare in 2011 that the highest rate was 0.67 and 0.77 among males of city and villages and between the ages of 15-29 and among females of city and village it was 0.58 and 0.51 above 75 and between the ages of 15-29, respectively. In addition, the last column of 2-B shows that the mental retardation prevalence rate was calculated based on gender and residence location that was 0.57% between the ages of 15-29. However, the last row of 2-B shows that the mental retardation prevalence rate was calculated based on gender and residence location that among city men was 0.50%, village ones 0.61, among city women 0.33 and villages ones 0.41 %. Also the mental disorders prevalence rate around Iran estimated 0.44 %.

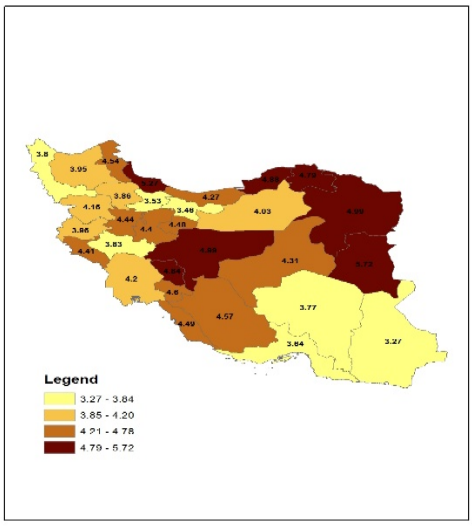

Figure 1: Prevalence of mental retardation during 2006 in the provinces of Iran

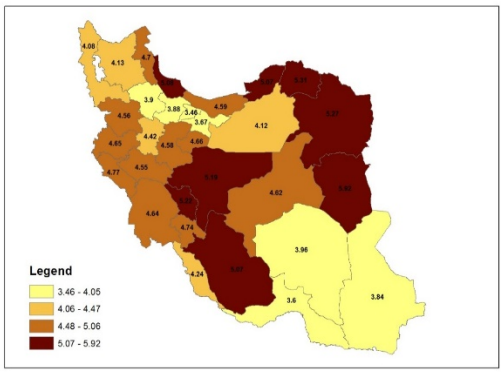

Figure 2: Prevalence of mental retardation during 2011 in the provinces of Iran

Table 1: Proportion of mental retardation in subgroups of age, sex and residence location during 2006 and 2011

Table 1-A: Proportion of mental retardation in subgroups of age, sex and residence location during 2006

Age groups	Male				Female				Total	
	Urban		Rural		Urban		Rural			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0-14	21933	0.19	12565	0.2	15469	0.21	8698	0.22	58665	0.2

15-29	51267	0.44	28065	0.44	3162	0.43	14249	0.41	127215	0.43
30-44	25679	0.22	14206	0.22	13787	0.19	8397	0.21	62069	0.21
45-59	10908	0.09	5511	0.09	5880	0.08	3451	0.09	25678	0.09
60-74	4569	0.04	2597	0.04	3065	0.04	1871	0.05	12102	0.04
75 <	2983	0.03	1476	0.02	3360	0.05	1315	0.03	9134	0.03
Total	117339	0.4	64420	0.22	73123	0.25	39981	0.13	294863	1

Table 1-B: Proportion of mental retardation in subgroups of age, sex and residence location during 2011

Age groups	Male				Female				Total	
	Urban		Rural		Urban		Rural			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0-14	23480	0.17	11502	0.17	16498	0.19	7965	0.19	59445	0.18
15-29	55628	0.41	27231	0.41	36170	0.41	16786	0.39	135815	0.41
30-44	33408	0.25	16756	0.25	20908	0.24	10818	0.25	81890	0.25
45-59	15533	0.11	6907	0.1	7975	0.09	4161	0.1	34576	0.1
60-74	4638	0.03	2029	0.03	3454	0.04	1707	0.04	11828	0.04
75 <	3326	0.02	1658	0.03	3490	0.04	1458	0.03	9932	0.03
Total	136013	0.41	66083	0.2	88495	0.26	42895	0.13	333486	1

Table 2: Prevalence rate of mental retardation in subgroups of age, sex and residence location during 2006 and 2011

Table 2-A: Prevalence rate of mental retardation in subgroups of age, sex and residence location during 2006

Age groups	Male				Female				Total	
	Urban		Rural		Urban		Rural			
	Number	Prev*	Number	Prev	Number	Prev	Number	Prev	Number	Prev
0-14	21933	0.37	12565	0.39	15496	0.28	8698	0.29	58665	0.33
15-29	51267	0.6	28065	0.7	31634	0.37	16249	0.43	127215	0.51
30-44	25679	0.47	14206	0.71	13787	0.27	8397	0.42	62069	0.43
45-59	10908	0.36	5511	0.51	5808	0.2	3451	0.29	25678	0.31
60-74	4569	0.36	2597	0.38	3065	0.26	1871	0.29	12102	0.32
75 <	2983	0.71	1476	0.52	3360	0.82	1315	0.6	9134	0.68
Total	117339	0.48	64420	0.57	73123	0.31	39981	0.37	294863	0.42

Table 2-B: Prevalence rate of mental retardation in subgroups of age, sex and residence location during 2011

Age groups	Male				Female				Total	
	Urban		Rural		Urban		Rural			
	Number	Prev	Number	Prev	Number	Prev	Number	Prev	Number	Prev
0-14	23480	0.38	11502	0.4	16498	0.28	7965	0.29	59445	0.34
15-29	55628	0.67	27231	0.77	36170	0.43	16786	0.51	135815	0.57
30-44	33408	0.51	16756	0.73	20908	0.33	10818	0.48	81890	0.47
45-59	15533	0.4	6907	0.57	7975	0.21	4161	0.32	34576	0.34
60-74	4638	0.31	2029	0.34	3454	0.22	1707	0.25	11828	0.27
75 <	3326	0.57	1658	0.47	3490	0.58	1458	0.5	9932	0.54
Total	136013	0.5	66083	0.61	88495	0.33	42895	0.41	333486	0.44

Discussion

According to our literature review, this study appears to be one of the few studies on the prevalence of mental retardation (MR) and the first study that shows its trend from our country during 2006-2011.Mental retardation is defined by the American Association on Mental Retardation (AAMR) as "significantly sub average intellectual functioning existing concurrently with related limitations in two or more of the following applicable adaptive skill areas: communication, self-care, home living, social skills, community use, self-direction, health and safety, functional academics, leisure and work," with such limitations manifested "before age 18 [6]. There are a number of problems and challenges in relating the science of epidemiology to mental retardation (MR). These relate to how MR is defined and classified and how these definitions may change over time. These as well as other differences in ascertainment sources and methods need to be considered when comparing MR prevalence over time and place [7]. It is observed usually among children and infants. Because it is along with emotional and social stigma so it is recommended instead of intellectual disability. The finding of present study declared that mental retardation prevalence has increased in most states of country in recent years. Also MR prevalence rate has increased in 5 recent years.

A study conducted by Strømme et.al in Norway on 30037 children born between 1980 and 1985. The cases were divided into four groups: profound (IQ < 20), severe (IQ 20-34), moderate (IQ 35-49), and mild (IQ 50-70). Prevalences for profound, severe, moderate, and mild MR were 0.8, 0.4, 1.5 and 3.5/1000, respectively [8]. Mental retardation prevalence rate in Iran and other countries are almost the same. There are some reasons for the incline in recent years in Iran. The first and most important reason could be due to improvement of quality and quantity in hygiene services offers that help the patients to live longer. Second, improvement diagnosis services that would help the slight mental retardation to be cured which wasn't possible before. Third, women tend to study and work and marry in old ages that would be reason for children to be born in old ages which could make the possibility of getting this disease much higher. Increasing trend of education among people in Iran started in 1956 that the percentage of men were 14.6% and women 5.4%. This percentage reached in 2003 to 89.9 and girls 79.9 for boys and girls, respectively [9]. Females' improvement in university level has been thoroughly notable since 2005 so that the percentages of them in universities were 56 % and 62% of all the accepted attendants [10]. Similar to other studies [8, 11], the prevalence rate among males was more than females. There are some reasons; First, better diagnosis among boys because of their odd behavior sample in primary school. Second, perhaps boys have more independent to move themselves and mess around, they are more than girls in danger of getting this kind of disease. Third, perhaps there is some kind of genetic relevant issues that is more common among boys compared with girls [12]. Despite the fact that in 60% of the cases the reason of mental retardation isn't clear but there are some reasons that happens before, meanwhile and after the disease which are identified as etiologic related factors listed as genetic factors, chromosome disorders, biological, organic and environmental factors. There are some operations to reduce the effect of these factors. Some countries have made strategies to prevent the effect of mental retardation. They add some special substances like salt and folic acid to bread (in 67.1% of countries), preventing consumption of alcohol and drugs in

pregnancy (61.6 %), genetic consultant and examination before delivery (61.0%) and testing for phenyl, lead and deactivation of thyroid (57.5 %) [13].

Conclusion

Increasing trend of disables need more supply and demand for services and costing a lot for government. Identifying of high risk regions and effective social factor, lead of sources and limit facilities for mental retardation are the most important effects focusing on three level of preventing (primary, secondary and tertiary) that could play an important role on catching reduction, prevalence and recovery of disables.

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