



## Original Article

## Comparing Environmental Barriers to Social Participation Between Visually, Auditory Impaired Primary School Children and Normal Peers in Shiraz City (2015)

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## ABSTRACT

**Background:** Participation is an important component in a child's growth, which is not just affected by child's functional abilities, skills, interests and family culture; but also affected by the physical, social and institutional environment. Hearing and visual impairment in children may cause growth delay including cognitive, mobility and communication skills. The aim of this study was to compare the environmental barriers to social participation from parent perception in primary-school children with hearing/visual impairment and normal ones in Shiraz City (2015).

**Methods:** This was a cross-sectional and comparative study. Convenience sampling was used and 75 children with visual, hearing impairment and normal ones (25 in each group) were selected from 4 areas of Shiraz Schools. Demographic data and environmental factors of Craig Hospital questionnaire were used. The findings were analyzed by using SPSS 21 software with One-way ANOVA and post hoc tests at a significant level less than 0.05.

**Results:** The results did not show statistically significant difference in the environmental barriers to participation from parent perception among three groups of normal children, children with hearing/ visual impairment ( $P=0.12$ ). Moreover, there was no statistically significant difference between three groups of children in terms of the physical and structural barriers subscales ( $P=0.341$ ), attitudes and support ( $P=0.424$ ), services and help ( $P=0.115$ ), work and school ( $P=0.221$ ). However, there is a significant difference between the 3 groups in Policy barriers subscales ( $P=0.003$ ).

**Conclusion:** No differences in environmental barriers to participation between normal children and those with hearing/visual impairments can be resulted from excessive families' support to meet the needs of children with disabilities. Therefore, serious challenges may not be created for independent participation of children to reveal the existing barriers.

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## Introduction

Visual impairment is considered as any chronic visual

impairment that damages person's daily performance. The defects such as blindness and low vision cannot be corrected with intraocular lenses or glasses. There are about 19 million children with visual impairment in the world according to the statistics provided by the World Health Organization (WHO) [1].

On the other hand, hearing impairment is unilateral or bilateral hearing loss that is considered as the most common sensory defects in humans and involved more than 250 million people worldwide [1].

Both of these defects in children may cause a delay in growth abilities such as cognitive, mobility and communication abilities. Visual and hearing impairments have also negative effects on children's interpersonal communication and self-confidence. Proper growth and well-being of children is directly affected by their participation in different activities [1].

Law and his colleagues expressed Participation as "occupation/participation in the activities of daily life" [2]. Participation is also defined as involvement in life situations such as personal care, mobility, exchange of information, social relationships, family life, education, work, economic, social and civil life according to the Functional Classification, Disability and Health (ICF) [1]. In fact, participation can lead to life satisfaction and feelings of competence while restricted participation cause occupation exclusion. This means that people are not able to do the necessary and important things in their lives [3].

According to the Functional Classification, Disability and Health (ICF), the living environment of people with disability can affect their participation, such as personal factors (such as beliefs, character and the way of dealing with problems) and environmental factors (such as products and technology, the natural environment and building, support and relationships, attitudes and values, service systems and policies). If these factors have a positive effect on participation, they will be considered as a facilitator and also can be mentioned as a barrier if they restrict the participation. Many factors contribute and promote person to participate in different activities, while other factors prevent and restrict him from participation [4].

Some studies have examined the impact of environmental barriers on participation of people with disability. Anabi and his colleagues have studied the barriers of participation in children and adolescents with a disability aged 5-21 years and showed that the most common barriers were included attitudes, physical environment, transportation, policies and the lack of support from staff and service providers [5]. Coster and his colleagues have shown that children with disabilities are participating in school activities, especially sports activities less than their peers. Their parents reported that environmental features restrict children's participation in school physically and socially and supporting sources are not enough for these children [6]. Nobakht and his colleagues showed many environmental barriers to participation of a group of Iranian children with cerebral palsy and the more severe problems they had the more barriers they were encountered with [4].

As activities and participation components closely followed by the environmental factors component [7], therefore, it seems that these environmental factors are different in different countries. Previous studies have not examined environmental barriers to participation in children with visual and hearing impairment from parent perception [8-13]. Therefore, in this study, we compared the environmental barriers to social participation from parent perception in primary-school children with hearing/visual impairment and normal ones in Shiraz City (2015).

## Methods

This is a quantitative, cross-sectional and comparative study. Convenience sampling was used and 25 children with visual impairment, 25 children with hearing impairment and 25 normal children were selected. Sample size estimated by Medcalc software according to previous studies. This study was performed in visual impaired students of Shourideh Shirazi School, hearing impaired students of Baghcheban and Khaghani schools and normal students of Omid-e-Farda, Nabovat, Imam Hadi, Allameh Tabatabaei, Montazeran-e-Mahdi, Shahid Gholamreza Shafiei, Shahid Gholamian and Seyed Ahmad Khomeini schools. General inclusion criteria for this study were age between 6 to 12 years old and living in Shiraz during the last year in each 3 groups. Inclusion criteria for normal students were included visual acuity over 6.60 and range of hearing between 10-25 dB according to students hygiene files at school. Inclusion criteria for children with visual and hearing impairments were included studying at an exceptional school for students with visual or hearing impairments. In this study, visual acuity was considered less than 3.60 and 6.60 in "better eye" for group with visual impairment according to students hygiene files at school. Hearing loss in the range of 65-85 dB (severe) and over 85 dB (deep) was considered for group with hearing impairment according to students hygiene files at school. Exclusion criteria in each 3 groups were the unwillingness of parents to participate in the study, severe physical and mental problems such as mental retardation and cerebral palsy and not living in Shiraz during the last year.

The first step of study was to obtain parent's consent for participation in the study. Then, some description were presented to them about completing the questionnaires. Questionnaires were included researcher-made background information questionnaire and version 25 parts of Craig hospital inventory of environmental factors. Researchers collected the questionnaires completed by the parents on that day.

The researcher-made questionnaire was included individual and family characteristics such as age, sex, education, drugs, treatments and received services, number of children, address, diagnosis, type of assistive used device, speech impairments, seizures, mother's age, father's age, parent's education level, their jobs and monthly income.

Standard questionnaire of Craig inventory of

environmental factors was used to evaluate the numbers and severity of environmental barriers. The questionnaire is available in two forms of 25 and 12 parts divided into five subscales of attitudes and support (attitudes at home, attitudes in community, support at home, support in community, discrimination), service and help (transportation, information, education/ training, medical care, personal equipment, help at home, help in community), physical and structural (design of home, design of school, design of community, natural environment, surroundings, technology), policies (services in community, policies of businesses, policies of education, policies of government), work and school (help at school, attitude at school, support at school). The questionnaire of 25 part version was considered for this study. Each part is scored in terms of the frequency and magnitude. It means that the respondents asked to score, number of facing barriers with these options first (Daily=4, weekly=3, monthly=2, less than once a month=1, never=0). The second question is posed if child faced barrier and the magnitude of that problem should be stated with option (2=big problem, 1=small problem). The score of each part is multiple of the frequency score and magnitude of range 0-8. Each subscale is obtained by calculating the average scores of the subscales items and the total score is

calculated by the average of all items. Content validity of the original version has been confirmed by review of the literature and consulting with experts. The questionnaire has reliability testing times and Alpha internal consistency of 0.93. Persian version of this questionnaire is obtained from the process of translation and equivalent based on the protocol of international quality of life assessment. Persian version is obtained from external validity, discriminated validity of parts, the reliability testing times of ICC=0.94 and Alpha internal consistency of 0.86 to be used by children with cerebral palsy.<sup>4</sup>

The results of this study were statistically analyzed by SPSS 21 software in both analytical and descriptive statistics with a significant level less than 0.05. Statistical tests were One- way ANOVA and post hoc test.

## Results

25 normal students (13 boys and 12 girls), 25 students with visual impairments (14 boys and 11 girls) and 25 students with hearing impairment (14 boys and 11 girls) were participated in the study. Mean age of normal children was  $9.52 \pm 2.06$  and mean age of children in both other group was  $9.44 \pm 2.12$ . The results of the study are shown in Tables 1, 2 and 3.

**Table 1:** Visual and Hearing Impairments in groups

Status	Visual Impairment		Hearing Impairment		Normal	
	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency
Visual Impairments						
No	0	0	84	21	96	24
Blind	80	20	0	0	0	0
Strabismus	4	1	8	2	4	1
Low Vision	16	4	8	2	0	0
Hearing Impairments	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency
No	100	25	0	0	100	25
Profound Hearing Loss	0	0	56	14	0	0
Severe Hearing Loss	0	0	40	10	0	0
Unknown	0	0	4	1	0	0
Total	100	25	100	25	100	25

**Table 2:** Mothers and Father's education of 3 groups

Status	Visual impairment		Hearing Impairment		Normal	
	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency
Mother's education						
High school	32	8	32	8	48	12
Diploma	40	10	24	6	36	9
Associate's degree	4	11	16	4	8	2
Bachelor degree	24	6	4	1	4	1
Post graduate	0	0	24	6	4	1
Father's education	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency
High school	16	4	59.1	13	52	13
Diploma	48	12	22.7	5	44	11
Associate's degree	28	7	13.6	3	0	0
Bachelor degree	4	1	4.5	1	0	0
Post graduate	4	1	0	0	4	1
Total	100	25	100	25	100	25

**Table 3:** Significant Levels of Studied Scales

Studied Scales	Environmental Barriers of participation	Service and Help	Attitudes and Support	Work and School	Physical and Structural	Policies
P value	0.12	0.115	0.424	0.221	0.341	0.003

Moreover, after confirming the data normality by Kolmogorov-Smirnov test, One-way ANOVA was used to compare the mean of measured variables in 3 studied groups.

The post hoc test was also showed the high level of environmental constraints related to the policy of children's participation in normal children, children with hearing and visual impairment respectively.

## Discussion

According to the results of study, although 80% of students in visual impaired group were blind and 56% of students in hearing impaired one had profound hearing loss in comparison with just 4% strabismus and no visual impairment in normal students, but there was not statistically difference between three groups in perception of parents about environmental barriers to disability. The only difference between three groups was seen in policy subscale (lack of social programs and services in the community, policies and rules of businesses and organizations, educational and employment programs and policies, government programs and policies). The post hoc test was also showed the high level of environmental constraints related to the policy of children's participation in normal children, children with hearing and visual impairment respectively. It means that normal children encounter more barriers than two other groups in policy.

Family plays an important role in Iranian society and is a great support resource for its members, especially for children with disability. Parents support their children strongly and meet all of their needs without proper notice to barriers of children's independence in society [14]. Also it seems that higher educational level of families direct them to support their children more than usual which may be because of their higher stress level [15]. In this study, there were academic education in 28% of mothers with visual impaired children, 44% of mothers with hearing impaired ones and 16% of mothers with normal ones. And about the level of father's education there were academic education in 36% of fathers with visual impaired children, 17.9% of fathers with hearing impaired ones and just 4% in fathers of normal children. On the other hand, unfortunately, it seems that family of persons with disability try to hide their needs and requirements to avoid inappropriate reaction and rejection by society members.

Law and his colleagues studied the parents of 427 children with physical disabilities in Canada. Parents completed Craig questionnaire and announced the highest barriers in school and work [9]. In the study of Nobakht and his colleagues, the environmental barriers of participation in children with cerebral palsy had been examined by using Craig hospital inventory of environmental factors and parents reported the highest level of barriers in children in terms of services, assistance and policies respectively [4].

Engel-Yeger and his colleagues had studied on 70 children, including 25 children with hearing impairment, 20 children with visual impairment and 25 normal

children and find considerably restricted participation in children with visual and hearing impairment compared to normal children and children with visual impairment are more restricted than those with hearing impairment. In this study, the participation of three groups had been compared by CAPE (children's assessment of participation and enjoyment) measuring participation [1]. Also Silva mentioned that visual loss (at any level) lead to functional impairment and limits participation and everyday performance and can be interfere with independency, autonomy and quality of life but environmental adaptations can be beneficial and increase functions [16]. Perkins studied about perception of parents about physical activity of children with visual impairment. Parents believed that there were multiple barriers to overcome to physical activities of these children which can be solved by adapted physical education and recreational professionals with the help of parents, pre teaching basic foundational skills for movement and sports [17].

One of the limitation of this study was that IQ, general health, physical health and mental health of children have not considered which can affect their social participation as personal factors. Another limitation is that there were unfortunately only one school for children with visual impairment and two schools for children with hearing impairment in Shiraz city. Moreover, the difficulty of contacting to the parents and the large number of questions in the questionnaire were included as the limitations.

It is suggested to include similar children in the future studies and measure mental health, intelligence and social skills, cognitive and perceptual problems, sensory processing problems of children before including the studies with similar themes.

## Conclusion

There are no differences in environmental barriers to social participation between normal children and those with hearing/visual impairments according to parent perception which can be resulted from excessive families' support to meet the needs of children with disabilities. Therefore, serious challenges may not be created for independent participation of children to reveal the existing barriers. This seems to be because of much more help from most of Iranian parents when they face to disability.

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**Conflict of Interest:** None declared.

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