



## Availability of outpatient rehabilitation facilities in 2015 in Iran: A nationwide study

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Received: 13 Nov 2017

Published: 10 Dec 2018

### Abstract

**Background:** Disability can involve many by diseases, injuries, or aging, and thus access to rehabilitation services has a key role in improving these patients' social life. Since 2008, Iran has improved the access to rehabilitation facilities along with the global convention. Yet, nationwide studies are required to evaluate the fair distribution of centres in each province. Thus, the present study aimed to evaluate the distribution of outpatient rehabilitation services in 32 provinces of Iran to help policymakers make more appropriate decisions.

**Methods:** In this cross sectional study, which was conducted between April and October 2017, a master facilities list (MFL) of rehabilitation services that was developed in Iran was used to identify health facilities. Data were collected from the statistics of the Deputy for Rehabilitation of Social Welfare Organization offices and Red Crescent Organization in 32 provinces of Iran. Descriptive data were analysed by SPSS version 22 and reported by percentage and number in 1 000 000 population; distribution was drawn on Iran's map by the GIS software.

**Results:** According to the MFL, outpatient rehabilitation services include physical medicine & rehabilitation, physiotherapy, occupational therapy, speech therapy, audiology, and orthotics & prosthetics (90%); other rehabilitation centres include general rehabilitation centres, day care centres, and vocational centres (10%). The largest number of occupational therapy, physiotherapy, and audiology offices were found in Tehran, where general rehabilitation centres, day care centres, and vocational centres were less than 3 per 1 000 000 population. There were no rehabilitation centers in 14 provinces, and there were very few physical medicine and rehabilitation centres in most of the provinces.

**Conclusion:** There was significant difference in the distribution of outpatient rehabilitation facilities in different provinces of Iran and some provinces required urgent attention of policymakers, as they had the least number or no rehabilitation facilities.

**Keywords:** Iran, Availability, Rehabilitation center, Outpatient facilities

**Conflicts of Interest:** None declared

**Funding:** Iran University of Medical Sciences

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**Cite this article as:** Ahmadzadeh N, Ebadi Fard Azar F, Baradaran HR, Roghani RS, Shirazikhah M, Joghataei MT, Bahrampouri S. Availability of outpatient rehabilitation facilities in 2015 in Iran: A nationwide study. *Med J Islam Repub Iran*. 2018 (10 Dec);32:123. <https://doi.org/10.14196/mjiri.32.123>

### Introduction

Disability is the umbrella term for impairments, activity limitations, and participation restrictions (1). The world-wide prevalence of different categories of disability was

reported to be one billion among the world's population (15% of the world's population) by the world health organization (WHO) in 2011 (2).

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#### ↑What is "already known" in this topic:

Universal coverage of rehabilitation services is important for disabled persons; and availability of outpatient rehabilitation facilities is one of the main indicators for assessment of rehabilitation coverage.

#### →What this article adds:

This study depicts the availability of rehabilitation facilities at the outpatient level and shows geographic distribution of outpatient rehabilitation facilities in different organizations in the country. Evidence was developed to adjust, plan, and decide on the extent and distribution of new rehabilitation centres.

However, despite these facts, rehabilitation is not considered as a priority to facilitate resources allocation; therefore, there is little funding for rehabilitation in Iran.

The estimated prevalence of disability in Iran was 13 per 10 000 population that increases with age (3). The increasing prevalence of chronic diseases, population aging, road accidents, natural disasters, war and climate changes add to the importance of disability in Iran (4). Thus, many people may experience disability temporarily or permanently in their lifetime. However, there is not enough resources to provide rehabilitation services (4), which highlights the importance of access to rehabilitation services that has recently attracted the attention of policymakers in this field.

Since 2008, a total of 152 countries, including Iran, have accepted the United Nations' Convention on the Rights of People with Disabilities (CRPD) that emphasizes universal health coverage and equal access to health services for all people with disabilities and requires governments to plan for sufficient rehabilitation services. One of the most important issues currently discussed in Iran is universal rehabilitation services coverage (5), which ensures that all people can use the required rehabilitative services that they need and ensures all kinds of services are available and accessible to all those who need them (6).

One of the most important indicators for achieving universal health services coverage is availability of services (7), which refers to the physical presence of the rehabilitation services with appropriate regional distribution (8) that affects the health consequences of people with disability (9). Rehabilitation services availability is different among communities (10). According to the 2013 Health and Population Report in the USA, there are about 14.9 days rehabilitation centres per 1 000 000 population and the number of home care centres is 37.9 and 11.5 respite centres per 1 000 000 population (11). In Iran, outpatient rehabilitation services include general rehabilitation centres, physiotherapy, physical medicine and rehabilitation specialists, occupational therapy, speech therapy, orthotics and prosthetics, audiology office, vocational training, and day rehabilitation centres. In a study, Shirazikhah et al found that 3.406 per 1 000 000 people refer to rehabilitation facilities in outpatient settings and that they are in the form of multidisciplinary day centres; they also found that there are 1.144 general rehabilitation centres for every 1 000 000 population (4). Although this study provided good information about outpatient services in the country, there is still no specific information on how these services are distributed throughout the country. In line with

WHO's recommendations to conduct research and generate evidence about the barriers of access to rehabilitation services, the present study aimed to evaluate the distribution of rehabilitation services in Iran to provide necessary evidence in this regard and to help the policymakers to make appropriate decisions to improve availability of rehabilitation services in Iran.

## Methods

### Study design

In this cross sectional study, which was conducted between April and October 2017, a master facilities list (MFL) of rehabilitation services, developed in Iran, was used to identify the health facilities (4). This list includes all public and private sectors, and non-governmental organizations (NGOs) in outpatient settings (Table 1). Three research assistants collected data from the statistics provided by the Deputy for Rehabilitation of Social Welfare Organization offices and the Deputy for Treatment of the Red Crescent Organization in 32 provinces of Iran. The MFL was mailed to 42 medical universities affiliated to the Ministry of Health, and 2 members of the dissertation committee checked the data for accuracy, completeness, and internal consistency.

The sample included all active public and private outpatient physical rehabilitation services affiliated to the Ministry of Health and Medical Education, Ministry of Welfare and Social Security, and the Iranian Red Crescent Society at different settings in 32 provinces in Iran.

### Statistical analysis

National data were analysed for the number of rehabilitation services (public and private centres); nominal and ordinal data were reported by basic descriptive statistics (percentage and frequency); quantitative data were reported by percentage, number in 1 000 000 people; and distribution was drawn on Iran's map by the GIS software. Data were analysed by SPSS version 22.

## Results

According to the MFL, availability of outpatient rehabilitation services was assessed based on types of offices (physical medicine & rehabilitation, physiotherapy, occupational therapy, speech therapy, audiology, and orthotics & prosthetics) and other rehabilitation centres that provided team work (general rehabilitation centres, day care centres, and vocational centres). As demonstrated in Figure 1, rehabilitation offices and physiotherapy offices had the most number of outpatient facilities in Iran (29.6:1

Table 1. Infrastructures of master facilities list for outpatient physical rehabilitation services in Iran

Domain	Tracer indicators, items or services
Outpatient	Number of rehabilitation centres per 1 000 000 population
	Number of Physical Medicine & Rehabilitation offices per 1 000 000 population
	Number of Physiotherapy offices per 1 000 000 population
	Number of Occupational therapy offices per 1 000 000 population
	Number of Speech therapy offices per 1 000 000 population
	Number of Audiology offices per 1 000 000 population
	Number of Orthotic & Prosthetic offices per 1 000 000 population
	Number of Day care centres per 1 000 000 population
	Number of Vocational centres per 1 000 000 population

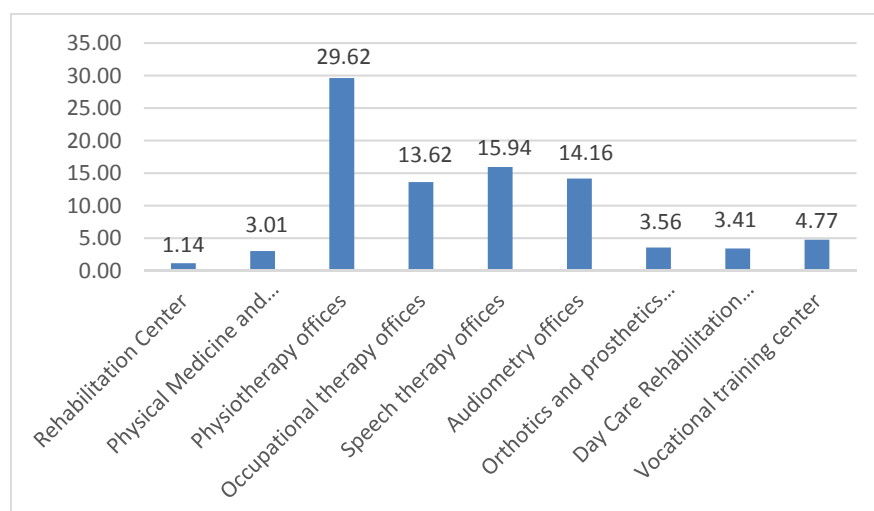


Fig. 1. The total number and frequency of outpatient rehabilitation facilities in Iran

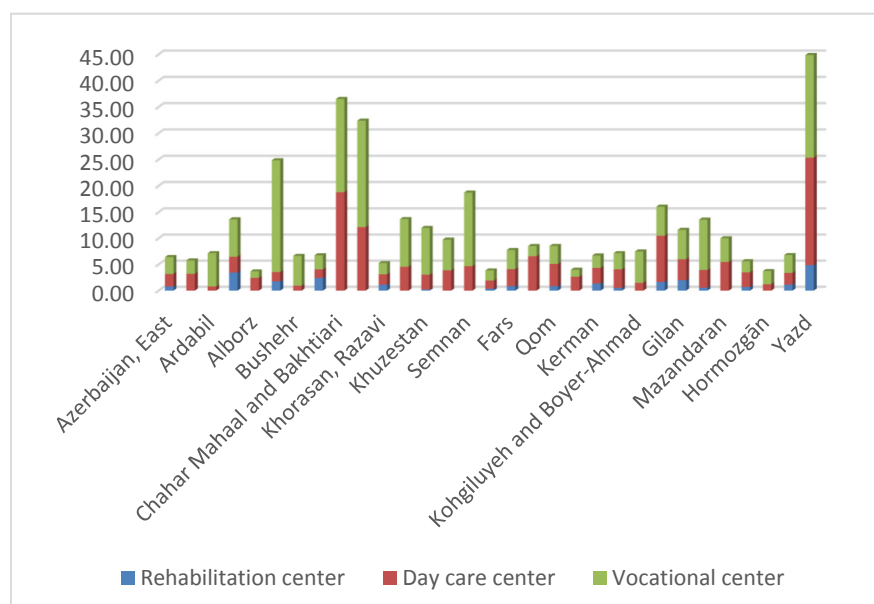


Fig. 2. The distribution of rehabilitation centres, day care centres, and vocational centres based on each province in Iran

000 000), followed by physical medicine & rehabilitation (0.4%), physiotherapy (33%), occupational therapy (15%), speech therapy (18%), audiology (16%), and orthotics & prosthetics (4%), which altogether included 90% of the total outpatient facilities. Rehabilitation centres (1%), day care centres (4%), and vocational centres (5%) included the rest (10%) of the outpatient facilities (Fig. 2).

In the next step, availability of the centres was calculated according to each province. Based on the results, the greatest number of physical medicine & rehabilitation offices were in Fars province (7.7:1 000 000), but there was none in ChaharMahal and Bakhtiari, Sistan and Baluchistan, and Hormozgan provinces. The highest number of occupational therapy offices existed in Tehran (35.5:1 000 000) and the lowest in Hormozgan province (0.6:1 000 000). The maximum number of speech therapy offices were in Semnan (31.2:1 000 000) and the minimum in Qazvin province (4.2:1 000 000). The most and least

physiotherapy offices were in Tehran (104.32:1 000 000) and in North Khorasan (14.8:1 000 000), respectively. Also, the largest number of audiology offices were located in Tehran (33.39:1 000 000) and the least in Sistan and Baluchistan province (3.5:1 000 000), respectively. The largest and smallest number of orthotic & prosthetic offices were available in Yazd province (11.7:1 000 000) and Sistan and Baluchistan province (0.4:1 000 000), respectively. The number of centers per 1 000 000 population is demonstrated in Table 2.

Most rehabilitation centres were in Yazd province (4.9:1 000 000) and there was none in 14 provinces (Table 2) and the highest and lowest number of day care centres were in Yazd province (20.5:1 000 000) and Ardabil (0.8:1 000 000), respectively. Also, Ilam (21.31:1 000 000) and Alborz provinces (1.2:1 000 000) had the most and the least number of vocational centres, respectively.

To demonstrate the variations in the distribution of comprehensive rehabilitation centres in different provinc-

Table 2. Number of outpatient rehabilitation facilities per 1 000 000 population

Province	Physical Medicine & Rehabilitation offices	Occupational therapy offices	speech therapy offices	Physiotherapy offices	Audiology offices	Orthotic & Prosthetic offices	Rehabilitation centres	Day care centres	Vocational centres
East Azerbaijan	5.86	8.00	5.86	29.32	7.20	2.67	0.80	2.40	3.20
West Azerbaijan	2.89	4.81	6.09	25.00	6.41	0.64	0	3.21	2.56
Ardabil	3.18	7.95	7.15	20.67	10.33	2.39	0	0.80	6.36
Isfahan	1.83	10.37	25.19	50.39	8.76	3.66	3.45	3.05	7.11
Alborz	3.26	20.77	18.72	38.26	17.09	3.66	0	2.44	1.22
Ilam	0	12.43	19.64	19.40	12.43	1.78	1.78	1.78	21.31
Bushehr	3.79	2.84	8.86	29.38	9.48	4.74	0	0.95	5.69
Tehran	6.36	35.51	28.76	104.32	33.39	7.96	2.44	1.63	2.68
Chaharmahal and Bakhtiari	0	11.06	15.49	34.29	8.85	5.53	0	18.81	17.70
South Khorasan	1.35	13.50	22.94	16.19	13.50	2.70	0	12.15	20.24
Razavi Khorasan	1.32	11.02	16.61	34.20	11.51	1.15	1.15	1.97	2.14
North Khorasan	0	7.97	13.67	14.81	11.39	3.42	0	4.56	9.11
Khuzestan	1.09	6.33	12.62	49.40	8.05	1.52	0.22	2.84	8.92
Zanjan	2.92	4.87	8.77	15.59	9.75	4.87	0	3.90	5.85
Semnan	4.68	29.64	31.20	74.88	18.72	4.68	0	4.68	14.04
Sistan and Baluchestan	0	2.31	4.62	25.04	3.47	0.39	0.39	1.54	1.93
Fars	7.76	9.91	14.86	72.38	8.18	0.65	0.86	3.23	3.66
Qazvin	0.82	8.24	4.24	28.01	9.89	4.94	0	6.59	1.93
Qom	3.41	20.48	24.74	51.20	20.48	5.12	0.85	4.27	3.41
Kurdistan	1.33	6.65	12.63	17.95	9.31	3.99	0	2.66	1.33
Kerman	1.68	10.06	15.09	32.53	15.09	1.68	1.34	3.02	2.35
Kermanshah	0.51	8.70	9.21	28.15	11.26	5.63	0.51	3.57	3.07
Kohgiluyeh and Boyer-Ahmad	1.50	10.43	17.94	35.77	25.41	1.50	0	1.50	5.98
Golestan	1.66	7.74	9.96	38.72	10.51	2.21	1.66	8.85	5.53
Gilan	1.20	8.01	8.41	45.67	9.62	3.21	2.00	4.00	5.61
Lorestan	1.70	5.09	9.04	22.60	7.91	5.09	0.57	3.39	9.61
Mazandaran	2.90	9.03	15.81	61.61	13.23	1.29	0	5.48	4.52
Markazi	0.70	17.51	13.31	32.21	20.31	2.80	0.70	2.80	2.10
Hormozgan	0.62	0.62	4.35	14.91	6.21	0.62	0	1.24	2.48
Hamadan	2.26	12.44	9.05	27.15	14.71	6.79	1.13	2.26	3.39
Yazd	1.95	14.63	27.32	48.78	14.63	11.71	4.88	20.49	19.51

\* Offices include hospital-based outpatient units, health center and private clinics

es of Iran, the number of each center is demonstrated on Iran's map (Fig. 3).

### Discussion

This study was conducted to determine the availability of outpatient rehabilitation facilities in Iran. Different facilities are available in outpatient setting in Iran, including physical medicine & rehabilitation centres, physiotherapy, occupational therapy, speech therapy, audiometry, orthotic & prosthetic and general rehabilitation centres

(eg, day care centres and vocational centres).

According to the results, the number of facility centres in Iran was high for physiotherapy centres (about 30: 1 000 000) and moderate for speech therapy, audiology offices, and occupational therapy centres (about 13–16: 1 000 000), while the number of physical rehabilitation offices was very limited in Iran (about 3: 1 000 000). In other words, the number of centres that offer comprehensive rehabilitation services was clearly lower than other centres and constituted only the 10% of the total centres. In Iran,



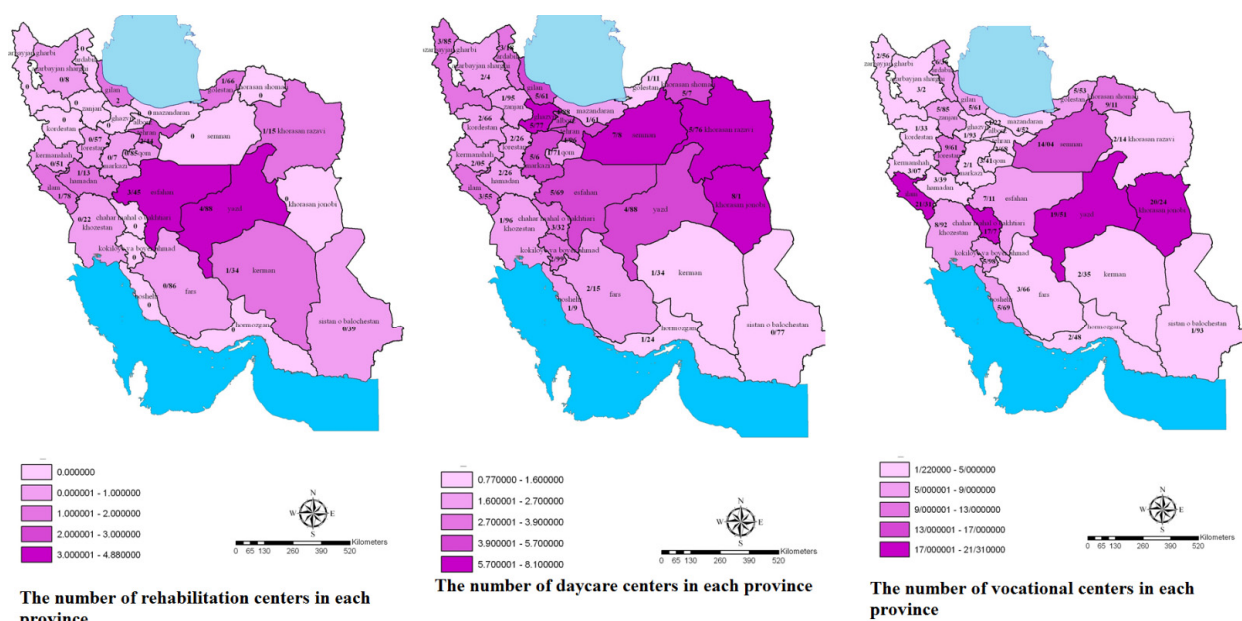


Fig. 3. The number of rehabilitation centres, day care centres, and vocational centres in each province of Iran

rehabilitation services are provided in different settings, including inpatient, outpatient, community-based, and long-term care centres (4). Outpatient rehabilitation services are supervised by the Ministry of Health and Medical Education, the Ministry of Welfare and Social Security, and the Iranian Red Crescent Society (12-14). Lack of integration and information registration system between the service providers could be the main reason for this unfair distribution of different types of facility centres in Iran. This matter has to be considered by policymakers, as patients with disabilities need to use a variety of rehabilitation services and comprehensive rehabilitation can help deliver coordinated rehabilitation services. In addition, having an interdisciplinary rehabilitation team with good management can provide essential affordable services (15), which should be considered more seriously in Iran.

Few Iranian studies have addressed rehabilitation and those who did have mainly focused on a specific group such as the elderly. In a study conducted by Abdi et al in Kashan, the necessity of building capacity for rehabilitation facilities in the health system was emphasized (16). Dalvandi et al conducted a study on patients after stroke and they found that lack of access to rehabilitative services led to life disintegration, functional disorder, and poor socioeconomic state (17). In the study of Farkhondeh Sharif et al, it was found that cardiac rehabilitation was effective in reducing depression 2 months after surgery in patients with coronary artery bypass graft (18) in 1 centre and, to our knowledge, no nationwide study has evaluated the number of rehabilitation centres. A study in Tehran has reported an accessibility of rehabilitation services as a major barrier based on interviews with patients and their family members, policymakers, and NGOs (19).

Although the results of the present study indicated limited number of physical rehabilitation offices in the nation, the situation in Iran does not seem very different from some other countries such as 4 South African coun-

tries, with access of only 26%–55% of people to rehabilitation services (2). Also, the global reports of WHO indicates that the need for rehabilitation facilities and services is not globally met, especially in low- and middle-income countries, where the estimates are inaccurate (10, 2). The results of the present study revealed that in addition to the inappropriate distribution of rehabilitation centres across the country, the number of centres available per 1 000 000 population in each province of Iran was different. Moreover, there were inadequate number of rehabilitation offices in some cities and no offices in some other cities. However, there were many physiotherapy, speech therapy, and audiology offices in almost all provinces of the country. Even in Tehran, the capital, the number of rehabilitation, day care and vocational centres was less than 3 per 1 000 000 population. In fact, rehabilitation centres only existed in 14 provinces and were less than 1 per 1 000 000 population in these provinces. Also, there were no physical medicine & rehabilitation offices in Ilam, Chaharmahal and Bakhtiari, North Khorasan, and Sistan and Baluchistan provinces, and there were less than 3 per 1 000 000 in 17 provinces, indicating insufficient number of physical medicine & rehabilitation offices in most provinces of Iran.

It was expectable that some deprived provinces, such as Sistan and Baluchistan, have a low number of most rehabilitation offices, but even in that province, the number of physiotherapy centres was more than 25 per 1 000 000 population. In Chaharmahal and Bakhtiari province, despite the absence or insufficient number of different rehabilitation centres, the number of day care centres and vocational centres was rather high (about 18:1 000 000). Overall, distribution of centres per province indicates that there is no province with appropriate distribution of rehabilitation services, as the number of some types of facility centres was rather small or very large in the provinces. For instance, Yazd had the highest number of rehabilita-

tion and day care centres in the nation, while the number of physical medicine & rehabilitation offices was less than 2 per 1 000 000 in the country. These results indicate the urgent need for managing Iran's rehabilitation services in all provinces. The major limitations of this study could be the retrospective evaluation of the variables based on the sources used for data collection and any bias in the original data.

### Conclusion

This study was the first nationwide study to assess the availability of the rehabilitation services in Iran and was based on the statistics of the Deputy for Rehabilitation of Social Welfare Organization offices and Red Crescent Organization in 32 provinces of Iran. In this study, it was found that the number of most rehabilitation services is insufficient in some provinces of Iran, while in some other provinces, the distribution is inappropriate and the number of some facilities is unexpectedly high. These results call for the attention of policymakers, executive directors, and therapists to eliminate cultural barriers to provide services to the target community to improve this gap and to create facilities for people with disabilities, with particular attention to appropriate distribution of these centres across the country.

### Acknowledgements

This paper is based on PhD thesis of Ms Nahal Ahmadzadeh supported by Iran University of Medical Sciences. Authors would like to express their deep gratitude to the following organizations: The Ministry of Health and Medical Education, the Social Welfare and Rehabilitation Organization, the Red Crescent Organization, and the Department of Statistics-Medical System Organization.

### Ethical approval

Ethical approval was granted by the ethics committee of Iran University of Medical Sciences.

### Informed consent

Not applicable

### Conflict of interests

The authors declare that they have no competing interests.

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