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Utilization of Rehabilitation Services by Disabled People under the Iranian Health Insurance Organization

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Abstract

Background: People with disabilities have greater unmet needs and need health care. These people are acknowledged as a global development priority.

This study aimed to investigate the utilization of rehabilitation services by people with disabilities covered by the Iran Health Insurance Organization.

Methods: This was a cross-sectional descriptive study at the national level. A total of 3676 out of 315,626 insured people with disabilities covered by the Iran Health Insurance Organization were selected from all provinces of the country using a simple random sampling method proportional to the size of the insured population.

Results: A total of 53% of people reported needing rehabilitation services in 2021. Of those requiring rehabilitation services, 51% required physical therapy, 50% occupational therapy, 22% speech therapy, 19% optometry, 13% audiometry, and less than 1% orthotics and prosthetics. Also, only 41% of people who needed rehabilitation services received them. The main reasons for not receiving needed services were financial inability to pay for treatment (76%), physical inability to follow treatment (16%), and the spread of the coronavirus disease 2019 pandemic (8%).

Conclusion: The inability to pay fees emerged as the most significant barrier to receiving essential rehabilitation services. Enhancing the financial coverage provided by basic health insurance funds is crucial. Expanding coverage will enable more patients to utilize the rehabilitation services they need, ensuring that financial constraints do not hinder access to vital care. This policy adjustment could be key in increasing the utilization of rehabilitation services and improving overall health outcomes for those in need.

Keywords: People with Disabilities, Rehabilitation Services, Utilization, Iran Health Insurance Organization, Coronavirus Disease 2019 Pandemic, Iran

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Introduction

The global coronavirus disease 2019 (COVID-19) crisis, declared a pandemic by the World Health Organization

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↑What is "already known" in this topic:
People with disabilities (PWDs) often face barriers to accessing rehabilitation services, with financial constraints being a significant challenge.

→What this article adds:
The study found that 53% of insured PWDs in Iran reported a need for rehabilitation services, but only 42% received the services required. Financial inability to pay for treatment was the most cited reason for not seeking services (76.79%), followed by physical inability to continue treatment (16.14%) and the spread of coronavirus (8.88%). The study highlights the need for comprehensive awareness programs, strategic planning for rehabilitation services, and the integration of rehabilitation services across the healthcare system to improve access and utilization.

(WHO) on March 11, 2020, has posed significant health and economic challenges worldwide, particularly for vulnerable groups like people with disabilities (PWDs) (1, 2). The WHO reports that over 1 billion individuals globally live with disabilities, with approximately 80% residing in low- and middle-income countries (3). Disability is recognized as a major public health concern, with a call to enhance access to health services and rehabilitation (4), defined as impairment, activity limitations, and participation restrictions due to congenital or acquired conditions. The prevalence of disabilities is rising due to population growth, aging, chronic diseases, and medical advancements extending life expectancy (5, 6). The number of PWDs is rising globally, driven by population growth, aging, chronic diseases, and medical advancements that increase life expectancy. Particularly in low-income countries, these trends are placing substantial pressure on health and rehabilitation services (7). According to the 2019 Global Burden of Disease Study, 2.4 billion people need rehabilitation services, a 63% increase from previous estimates (8). However, 76% to 85% of PWDs in developing countries do not receive any rehabilitation services (9). Ensuring that rehabilitation services are available close to the community is a key priority of the United Nations Convention on the Rights of Persons with Disabilities (10, 11). Rehabilitation includes various interventions aimed at addressing disability, activity limitations, and participation deficits, covering a wide range of services such as diagnostics, therapy, surgeries, and assistive devices (12). Effective rehabilitation helps reduce barriers preventing PWDs from functioning and integrating into daily life and can reduce the burden on caregivers and health systems by preventing hospitalization and reducing its duration (13). Investment in rehabilitation services promotes social participation, enhances quality of life, and contributes to the broader societal and economic well-being (7). Despite the substantial need for rehabilitation services, many PWDs face significant barriers to access, such as high costs, lack of awareness, stigma, and long waiting times (6). These barriers have been exacerbated by the COVID-19 pandemic, which has led to the closure or reduction of many rehabilitation centers and increased vulnerability for PWDs in terms of health and socioeconomic outcomes (1).

In Iran, the Ministry of Health and Medical Education (MOHME) is the primary provider and policymaker for healthcare services. More than 90% of the population is covered by social insurance schemes, including the Iran Health Insurance Organization (IHIO), the Social Security Organization, and the Health Insurance Organization of the Armed Forces (14). Rehabilitation services in Iran are offered in various settings, such as hospitals, outpatient clinics, nursing homes, and respite care centers by multiple organizations, including MOHME and the Iranian Red Crescent Society (15). Iran ranks among the top 10 countries with the highest rates of road traffic accidents, making head trauma, fractures, and spinal cord injuries leading causes of disability. Additionally, Iran's improving healthcare system and aging population are driving an increasing demand for rehabilitation services (16). Over 11 million people in Iran live with disabilities and need rehabilitation services. War, road accidents, climate change, natural disasters, and chronic diseases have further contributed to the rising prevalence of disability in the country (17). Access to rehabilitation services in Iran is challenged by several factors, including cultural barriers, financial issues, deficiencies in the rehabilitation provider system, and inadequate attention to social and cultural factors (4, 18-21). During the COVID-19 pandemic, these challenges have been intensified, leading to a greater risk of infection and more severe health consequences for PWDs. This study aimed to investigate the utilization of rehabilitation services by PWDs covered by the Iran Health Insurance Organization during the COVID-19 pandemic and to identify the barriers and facilitators affecting access to these services.

Methods

This was a descriptive cross-sectional study conducted at the national level in the population covered by the Iran Health Insurance Organization (IHIO) in 2022 to investigate the utilization of rehabilitation services by PWDs. The IHIO is one of the most important basic insurance funds in Iran, covering approximately 50% of the country's population (approximately 42 million people). This organization is made up of 5 insurance funds:

1. The Civil Servants Fund
2. The Rural Fund (includes all villagers, nomads, and residents of towns with less than 20,000 people)
3. Iranian & Universal Health Insurance Funds
4. Foreign Citizens Fund
5. Other social strata (such as veterans, including martyrs' families, war victims, and released prisoners of war, students, disabled people, and clients covered by the State Welfare Organization, clients covered by the Imam Khomeini Relief Committee, prisoners and their families, etc) (22, 23).

Study Population

The study population included PWDs covered by the IHIO. PWDs had different types of disabilities, including physical, sensory (sight, hearing), mental, psychological, or combined disorders and injuries, and the type and severity of their disability were approved by the Medical-Rehabilitation Commission. A total of 3676 samples were selected from 315,626 insured persons with disabilities in 2022. Participants were selected by simple random sampling proportional to the size of the population of persons with disabilities in each province. The number of selected samples was proportionate to the size of the population and the frequency and percentage of each type of disability in the provinces. A total of 200 samples were taken into consideration for the provinces with the largest population of disabled insured, and at least 50 samples were taken from each province, taking into account the varying numbers of disabled insured in various provinces.

Taking into account the possibility of missing, incorrect, or outdated contact numbers of insured persons, as well as their conditions, to obtain the desired sample information, 8 times the above number was selected.

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Data Collection Tools

The data were collected via a questionnaire and a structured telephone interview. We used a modified version of the questionnaire that was previously used in the national Utilization of Health Services Survey (UHSS) in 2014 in Iran (24). The questionnaire included demographic information, questions about the perceived need for rehabilitation services, the type of services needed, whether or not services were received, and the reasons for not receiving services. Structured telephone interviews were conducted from January to April 2022.

Data Analysis

The data were reported as descriptive indices, including the mean, standard deviation, percentage, and frequency. Stata 14 and Excel software were used for the data analysis.

Results

In this study, 4629 people were called, and 3676 people agreed to participate in the study (79% response rate). The distribution of samples in each province is shown in Figure 1. Most of the samples were from the provinces of Fars, Khorasan Razavi, Khuzestan, and Sistan and Baluchistan, and the fewest were from the provinces of Qom, Ilam, Bushehr, Yazd, and Semnan.

Of those who participated, 65.45% were male, 40.48% were single, 51.47% lived in families of 3 to 4 people, and 23.86% were aged 21 to 30 years. A total of 43.97% of the participants in the study were covered by the Rural Fund, and only 7.80% of the participants had supplementary insurance; 29.62% of the participants stated that the supplementary insurance covered the cost of rehabilitation services. Most of the participants (44.83%) had physical movement disorders (Table 1).

Also, 53.35% of respondents reported a need for rehabilitation services, including 51.04% for physical therapy, 50.02% for occupational therapy, 22.64% for speech and language therapy, 19.07% for optometry, and 13.67% for audiology and audiometry. As some people reported 2 or more disabilities at the same time, they reported the need for more than 1 service; thus, the total percentage in this section was more than 100.

A total of 41.71% of those in need of services received the services they needed, and 95.67% of those in need of rehabilitation services were unaware of the rehabilitation services offered by the IHIO.

Moreover, 76.79% cited financial inability to pay for treatment, 16.14% cited physical inability to continue treatment, and 8.88% cited the spread of coronavirus as the most common reasons for not seeking the services (Figure 2). An examination of the service centers showed that 47.07% were non-contracted private centers, 23.84% were contracted centers, and 24.45% were other centers. Also, 66% of people considered the cost of rehabilitation services in the organization's contracted centers to be too high compared with their income level, and 20.35% of people rated the quality of rehabilitation services in the IHIO's commitment as average (Table 2).

Discussion

Given the critical need for access to rehabilitation services to enhance the performance and quality of life of PWDs, this study aimed to assess the extent to which PWDs utilize rehabilitation services and identify the barriers to their access. Despite the proven benefits of rehabilitation programs, many PWDs continue to face challenges in obtaining necessary treatment and support. The study's findings revealed that 53% of insured PWDs reported a need for rehabilitation services, but only 42% of them received the services required. These findings are consistent with studies from other countries, which indicate that a significant proportion of PWDs do not have access to essential rehabilitation services (25). Among the 56.25% of participants who needed rehabilitation services but did not receive them, financial constraints were the most cited reason, with 76.79% of participants reporting the inability to afford treatment. Other barriers included physical inability to continue treatment (16.14%), the spread of COVID-19 (8.88%), distance to rehabilitation centers (7%), and dissatisfaction with the outcomes of the services received (6%). These barriers are not only detrimental to the health and well-being of PWDs but can also lead to disruptions in

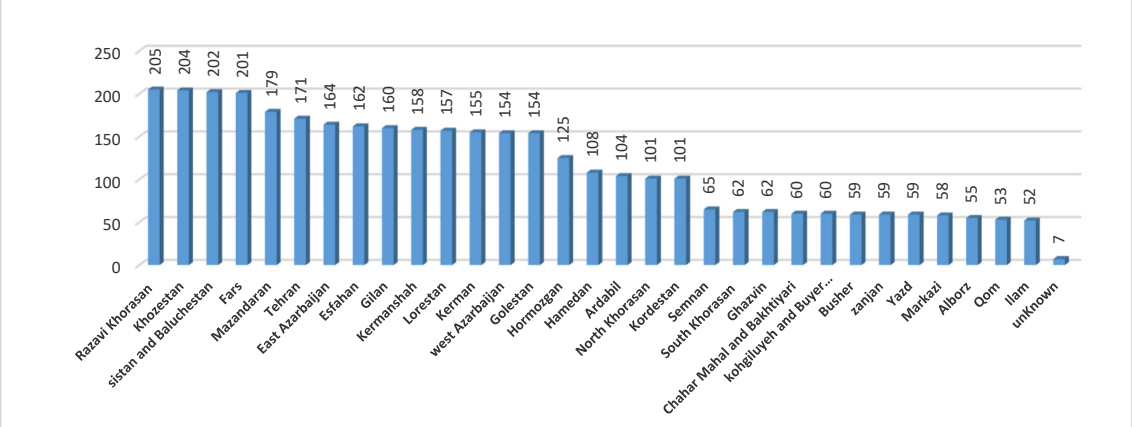

Figure 1. The distribution of study participants by province

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Table 1. Frequency Distribution of Background Variables of the Study Participants

Variable	Group	Frequency	Percent
Gender	Male	2,406	65.45
	Female	1,264	34.39
	Unknown*	6	0.16
Marital status	Single	1,488	40.48
	Married	1,366	37.16
	Divorced/widow	106	2.88
	Unknown*	716	19.48
Number of household members	1-2	603	16.40
	3-4	1,892	51.47
	5 & more	1,116	30.36
	Unknown*	65	1.77
Age group	<20	754	20.51
	21-30	877	23.86
	31-40	799	21.74
	41-50	614	16.70
	>50	604	16.43
	Unknown*	28	0.76
Type of Insurance	Rural Insurance	1,616	43.97
	Other Social Strata	1,224	33.30
	Universal health insurance	397	10.80
	Civil Servants	304	8.27
	Social Security Organization	97	2.63
	Others	38	1.03
Supplementary insurance	No	3,304	89.89
	yes	287	7.80
	Unknown*	85	2.31
Payment by supplementary insurance	No	148	51.57
	Yes	85	29.62
	In limited cases	9	3.13
	Unknown*	45	15.68
Family relationship of the respondent	PWDs	796	21.65
	Parents	1,513	41.16
	Wife	394	10.72
	Sister/brother/child and....	973	26.47
Type of disorder	Physical-mobility disorder	1,648	44.83
	Intellectual Disability	1,109	30.17
	Visual disorder	624	16.98
	Hearing disorder	487	13.25
	Mental disorder	424	11.53
	Speech disorder	365	9.93

*Missing data.

treatment follow-up, further exacerbating disabilities, deteriorating health conditions, and ultimately increasing the long-term healthcare costs for individuals, families, governments, and society (25) Financial constraints are widely acknowledged as a significant challenge in accessing rehabilitation services, as supported by existing evidence (4, 17, 26-28). A key factor contributing to this issue is inadequate insurance coverage or a lack of awareness about available coverage options, leading many PWDs to pay for services out of pocket. The high costs associated with long-term rehabilitation can discourage PWDs from seeking necessary care, particularly in the context of "long-term rehabilitation services" and the high concentration of PWDs in economically disadvantaged communities (29).

In this study, the majority of respondents reported not having supplementary health insurance, and many rehabilitation services for PWDs are either not covered by insurance or poorly reimbursed. Although some essential rehabilitation services may be covered under basic health insurance, the costs remain a significant burden for many, and the affordability of insurance premiums is often a challenge (26). Over recent decades, coverage for rehabilitation services in Iran has been relatively neglected. Prior research has shown that the lack of adequate health insurance coverage is linked to poor access to rehabilitation services, resulting in long wait times and delays in treatment, especially for those with low incomes in Iran (30). This issue is particularly pressing for PWDs with limited financial resources, as a substantial portion of their income is often spent on basic needs such as pensions, and many are unemployed or underemployed due to widespread employment discrimination (9). Furthermore, studies indicate that patients with financial independence tend to utilize more rehabilitation services compared to those who are reliant on family or government support (26, 31). In this study, 66% of respondents noted that the costs of rehabilitation services were prohibitively high about their income, which further limits their willingness to access these essential services. This aligns with the notion that affordability and the ability to pay are key determinants of access to healthcare services (13).

Our findings provide clear evidence that a significant majority of PWDs were unaware of the rehabilitation services offered by the IHIO. As a result, many PWDs failed to utilize these services, which often led them to seek care at al-

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Table 2. Needs, Utilizations, and Reasons for Not Using Rehabilitation Services

Variable	Group	Frequency	Percent
Need for rehabilitation services	No	1,702	46.30
	Yes	1,961	53.35
	*Unknown	13	0.35
Required services	Physiotherapy	1,001	51.04
	Occupational Therapy	981	50.02
	Speech Therapy	444	22.64
	Optometry	374	19.07
	Audiometry	268	13.67
	Orthotics & Prosthetics	12	0.61
Receiving the required rehabilitation services	No	1,103	56.25
	Yes	818	41.71
	*Unknown	40	2.04
Information about rehabilitation services in commitment	No	1,876	95.67
	Yes	70	3.57
	*Unknown	15	0.76
Reasons for not receiving services	Inability to pay for treatment	847	76.79
	Inability to refer and follow up	178	16.14
	Covid-19 outbreak	98	8.88
	Distance from home to rehabilitation centers	85	7.70
	Not getting the desired result from the services received	67	6.07
	Overcrowding of medical centers	42	3.80
	High transportation costs	27	2.44
Rehabilitation service receiving center	Private rehabilitation centers are not contracted with IHIO	385	47.07
	Rehabilitation centers contract with IHIO	195	23.84
	Other centers	200	24.45
	*Unknown	38	4.64
The amount of the payment cost compared to the income level	very much	45	23.08
	Much	84	43.08
	Medium	15	7.69
	very few, Few	8	4.10
	*Unknown	43	22.05
Service quality assessment	Very weak	355	18.10
	Weak	310	15.80
	Medium	399	20.35
	Good	292	14.90
	Very good	281	14.33
	*Unknown	324	16.52

*Missing data

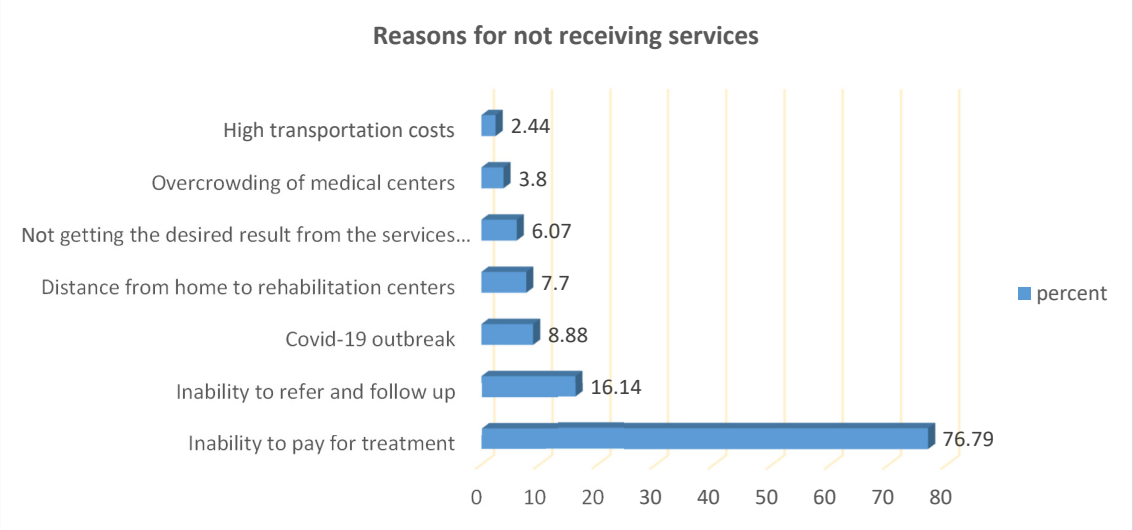

Figure 2. Reasons for not receiving service in people who felt the need for service but did not receive it

ternative centers that required high out-of-pocket payments. This situation not only places a heavy financial burden on PWDs but also contributes to the discontinuation of essential treatment. These findings align with evidence from other countries, which have similarly highlighted the lack of awareness as a key barrier to accessing rehabilitation services (32). To address this issue, it is recommended that comprehensive awareness programs be developed, with the use of social media as a key tool for disseminating information. These programs should target both PWDs and

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the general population to raise awareness about the rehabilitation services available through insurance programs like the IHIO (9). In Iran, rehabilitation services are provided by a range of organizations and in various settings, but the system suffers from fragmented information, particularly regarding access to these services. This fragmentation is exacerbated by a lack of coordination between the different entities involved in service provision (15). The absence of a centralized system to manage rehabilitation-related information further complicates access, as it leads to inefficient communication between health departments and professionals, which in turn hampers timely referrals and service utilization (33). Therefore, a comprehensive information system that includes rehabilitation-related information is one of the prerequisites for the provision of integrated rehabilitation services. Therefore, the establishment of a unified, comprehensive information system is essential to improve the coordination of rehabilitation services. Such a system would facilitate seamless communication between service providers, streamline referral processes, and ultimately enhance access to the services needed by PWDs. A more integrated approach is vital for overcoming the existing barriers and ensuring that rehabilitation services are accessible, efficient, and timely for all individuals in need.

In the present study, physical inability to follow up on treatment and the distance from home to rehabilitation centers were identified as additional reasons for the nonuse of rehabilitation services by PWDs. Previous studies have shown that the longer the duration of a disability, the lower the level of functional independence. Furthermore, patients living closer to rehabilitation centers are significantly more likely to access and utilize rehabilitation services compared with those living at greater distances (17, 26, 27). This suggests that PWDs, due to the nature of their disability, have a preference for rehabilitation services located near their residences. Accessing services in centers that are far from home poses significant challenges, including physical limitations, financial constraints, and logistical difficulties. Barriers to accessing rehabilitation services, such as a lack of transportation or an accompanying person to travel to the rehabilitation facility, further exacerbate these challenges (27). Given these constraints, it is crucial to consider the geographical distribution of rehabilitation centers. To improve accessibility, it is recommended that rehabilitation centers be established in various regions to cater to patients living in different geographical areas, thereby reducing travel distances and increasing the likelihood of service utilization (12).

Strategic planning for rehabilitation services is essential to ensure equitable distribution of rehabilitation workers and centers, particularly in rural areas where access to such services is limited (34). In many rural regions, the scarcity of rehabilitation specialists and facilities exacerbates the disparities in service availability. Therefore, it is critical to develop localized solutions that respond to the specific needs of communities, particularly in areas where disabilities are more prevalent (11). One effective strategy to address these disparities is to increase the number of rehabilitation specialists according to the demand in different provinces. This approach would ensure that resources are allocated more efficiently, ensuring that PWDs in all regions, particularly underserved rural areas, have access to essential services. In addition, leveraging the capacity of primary health care centers to provide community-based rehabilitation services is a crucial step. These centers can play a significant role in extending rehabilitation services to remote areas, particularly by training local health workers and caregivers to deliver basic rehabilitation interventions. This strategy can help bridge the gap in service availability and improve rehabilitation access for people with disabilities across the country.

PWDs are more vulnerable to infectious diseases, such as COVID-19, compared with other segments of the population. This increased vulnerability is due to factors such as physical and mental disorders, underlying health conditions, and limitations in adhering to self-care guidelines (2). During the COVID-19 pandemic, widespread infection, fear of contracting the virus, and the closure of rehabilitation centers for several months were significant contributors to PWDs not seeking rehabilitation services. Furthermore, failure to achieve the desired outcomes from previously received services often led to discontinuation of treatment and reduced motivation to continue care. Studies show that individuals who experience relief or recovery after receiving appropriate rehabilitation services are more likely to become regular users of rehabilitation (26). As a result, a better understanding of the effectiveness of rehabilitation services is crucial to increasing their utilization. Monitoring and assessing the quality of rehabilitation care is essential to ensure that the benefits for PWDs are maximized and that services are continuously improved (12). Regarding the demographic characteristics of the sample, the majority (65.5%) of the respondents were men. This may be due to the higher prevalence of physically demanding occupations among men, such as motorcycling, taxi driving, and street vending, which increase the risk of accidents, injuries, and disabilities (6). Additionally, women may face more responsibilities at home, which could limit their ability to access and utilize rehabilitation services effectively.

According to the results of this study, PWDs in Iran have not made sufficient use of rehabilitation services supported by the IHIO. The fragmentation of rehabilitation services, with different organizations such as the Ministry of Health, the Welfare Organization, and the Red Crescent providing services, may contribute to this issue (4). The lack of coordination between these organizations prevents the establishment of a continuous and integrated chain of care (15). Therefore, it is recommended that rehabilitation services be integrated to address these challenges and provide comprehensive, universal coverage for PWDs. To enhance the quality of life, participation, and empowerment of PWDs, the WHO advocates for community-based rehabilitation (13). This approach is crucial for ensuring that PWDs can enjoy their fundamental human rights and contribute to achieving the Sustainable Development Goals. To improve access to services and reduce transportation costs, the government should prioritize the promotion of community-based rehabilitation programs and provide rehabilitation

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services through primary health care centers (6, 10). In addition, governments, policymakers, and other stakeholders must increase awareness and sensitivity regarding rehabilitation services, not only among PWDs but also among healthcare providers and the general public. Increasing educational opportunities for PWDs and securing funding that addresses their specific needs are also essential steps toward improving service access (9, 32). To achieve universal health coverage, rehabilitation services must be fully integrated into national health systems at all levels (10).

According to these findings, rehabilitation services in Iran are provided at various levels, including inpatient services, outpatient services, day centers, residential care facilities, and community-based services. However, there is a lack of regular coordination and interaction between the different components of service delivery. For example, there is no functional referral system, and the services are not integrated. This lack of integration hinders the continuity of care, a key element for effective rehabilitation. In recent years, the Iranian government has made efforts to expand the coverage of healthcare services, but gaps remain. A key area of concern is the need for residential services, such as nursing homes or residential care facilities, for older people with disabilities. Addressing the healthcare needs of this population will require the expansion of services, such as increasing inpatient beds and developing the necessary infrastructure, including rehabilitation centers staffed with trained professionals. The provision of rehabilitation services by different organizations, without proper communication and coordination, has been a significant barrier to the effective delivery of rehabilitation care. To address these challenges, comprehensive policies are needed to integrate rehabilitation services across the country. Furthermore, establishing an effective monitoring and evaluation system could provide valuable data to policymakers, helping them understand the rehabilitation needs of target groups in different regions of the country.

The study acknowledges several key limitations, including the impact of COVID-19 and the lack of socioeconomic data. However, it is also important to consider the potential for response bias, as the reliance on self-reported data may have influenced the accuracy of the findings.

Conclusion

Based on the findings of this study, challenges exist regarding access to and utilization of rehabilitation services supported by the IHIO. However, there is optimism that information technology can improve the delivery of rehabilitation services and overcome geographical barriers. To enhance rehabilitation provisions, integrating and expanding rehabilitation services across all levels of the healthcare system is essential, ultimately expanding access for PWDs. Moreover, to raise awareness of the importance of rehabilitation and ensure the majority of disabled individuals can benefit, community-based rehabilitation should be made widely available through various media channels as soon as possible. These results have significant public health implications, as improving access to rehabilitation can contribute to better health outcomes, reduce the long-term burden of disabilities, and promote social inclusion for people with disabilities. The findings of this study can guide rehabilitation service providers and policymakers in prioritizing resources, ensuring equitable access to rehabilitation services, and ultimately contributing to the overall well-being of the population.

Authors' Contributions

All the authors contributed to the study conception and design. Material preparation, data collection, and analyses were performed by Z.Sh., A.SH., P.K., M.M.N., M.D., M R, H.R,. A.SH., R.D., S.A., and Z.SH. made substantial contributions to the interpretation of the data. The first draft of the manuscript was written by S.A., R.D., and Z.SH. All the authors revised the manuscript critically for important intellectual content and approved the final version.

Ethical Considerations

This study was approved by the Deputy of Research and Technology of Tehran University of Medical Sciences Ethics Committee (IR.TUMS.NIHR.REC.1401.012). The data used in this study were anonymized before use. Informed consent was obtained from all participants. In this study, all methods were performed in accordance with the relevant guidelines and regulations and accordance with the Declaration of Helsinki.

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Conflict of Interests

The authors declare that they have no competing interests.

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