

Financial Access of Adult People with Disability to Health Services: Rural Population Study from Iran

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Abstract

Background People with disabilities (PWDs) account for a significant percentage of the world's population, with a higher prevalence in less developed countries. Access to healthcare services is the main component of health systems performance, with lower access for PWDs living in rural areas. The current study aimed to investigate PWD's access to healthcare services in rural areas of Iran and, secondly, factors that contribute to this issue.

Methods Following a cross-sectional design, the current descriptive-analytical study is performed in the north of Iran. Using the quota sampling technique, 471 PWDs were recruited. Data were collected using a valid and reliable questionnaire, covering three dimensions of access, by face-to-face interview. Data analysis was administered using central tendency indicators and multiply regression by SPSS version 17. Statistical significance was considered when $p\text{-value} < 0.05$.

Results The mean score of PWD's access to healthcare services for dimensions of utilization, availability, and affordability was $8.91(\pm 6.86)$, $14.54(\pm 2.3)$, and $51.91(\pm 8.78)$, indicating very low, low, and moderate levels of access. All three regression models were significant ($P < 0.05$), and variables of gender, age, marital status, education level, residence status, the income of the household head, receiving financial aid, and house area showed a significant effect ($P < 0.05$).

Conclusion This study demonstrated the seriousness of paying attention to PWD's financial access to healthcare services, particularly in rural areas of Iran. Hence, policymakers should better focus on this problem, mainly regarding accessibility and utilization and factors that result in inequalities.

Introduction

As a complicated concept, access to healthcare services is the main component of health systems performance (1). Etymologically, access indicates the method or possibility of getting near a place to utilize a service or good. Within healthcare, *access* is defined as an opportunity to utilize a service according to the needs (2). In other words, access is the right to use a service at the right time and place, with no restriction (3).

While there has been a significant improvement in access to healthcare in recent years (1), the fact that more than 8.6 million death, occurred in 137 countries, deemed preventable in 2016, indicates the necessity of ensuring access to healthcare services, specifically in low and middle-income countries (4). Meanwhile, people with disabilities (PWDs) may face particular barriers in access to healthcare services, particularly regarding their functional limitations (e.g., using public transportations (5)).

Nearly 15% of the world's population, or an estimated 1 billion people, suffer from a type of disability (6). The evidence emphasize the difficulties of PWDs in access to healthcare services, with more severe barriers in developing countries (7), mainly due to higher rates of disability and lower socioeconomic status of PWDs. A systematic review study showed that, apart from financial and structural problems, women with disabilities are faced with several socio-cultural barriers (6). PWDs living in rural and remote areas face more severe barriers in accessing healthcare services, with long traveling distances and consequent costs as the most critical challenge (8). Factors such as weakness of the health insurance system, low purchasing power, lack of

sufficient financial support, and transportation costs are the main barriers to access to healthcare services in countries such as Iran (9). Furthermore, nearly 30% of non-disabled people and 50% of PWDs cannot afford health expenditures (10). Meanwhile, they are more likely to face catastrophic health expenditures by 50% (11).

Disability prevalence is around 13 per 10000 populations in Iran (12). Recent qualitative studies in 2019 mentioned financial factors (accessibility, affordability, and utilization) as the main barrier for using healthcare services by Iranian PWDs (8). As literature is silent on factors that contribute to PWD's access to healthcare services in rural areas of Iran and the significant contribution of this factor in achieving universal health coverage (1), the current study aimed to investigate PWD's access to healthcare services in rural areas of Iran and, secondly, factors that contribute to this issue.

Methods

Participants

In this descriptive-analytical study, a total of 14 comprehensive rural healthcare centers, with a population of > 62,000, in the Noor county of Mazandaran province, Northern Iran, were investigated in 2019. Considering the global prevalence rate of 15% for disability, the study population comprises 9,000 PWDs living in the catchment area of the Noor Healthcare Network.

The sample size was estimated as 471 subjects, based on the prevalence of 15% (6), d of 0.044, and 95% confidence interval. The World Health Organization definition of disability was considered in this study, as follows: inability to perform daily activities during the past six months, including prolonged standing of more than 30 minutes, family care, learning a new skill (e.g., traveling to a new location), participation in social activities, such as celebrations and religious activities, being emotionally affected by health issues, difficulty in concentrating for more than 10 minutes, difficulty in walking a long distance (e.g., one kilometer), problems with bathing and dressing, problems with talking to strangers, and difficulty in maintaining friendly relations (13). Healthy cases, those younger than 16 years, and pregnant women were excluded.

Participants were selected using multi-stage sampling. For this purpose, initially, 14 Comprehensive Rural Healthcare Centers were categorized into four clusters. Then, proportioned to the catchment population, the share of each center from the total sample size was determined. Finally, participants were selected using a random sampling technique. Afterward, data were collected using face-to-face interviews.

Data Collection

Data were collected using a researcher-developed questionnaire, which comprised to sections: (a) Demographic information; and (b) Seven dimensions of access, including utilization, affordability, availability, geographical access, physical access, temporal access, and acceptability, according to Sultani et al.'s study (9). As investigating all dimensions in one article is not feasible, only three dimensions of utilization (seven items), affordability (eight items), and availability (eight items), which cover financial dimensions of access, are included in this study. A five-point Likert scale was used to calculate the final score, ranging from strongly low to high.

The validity and reliability of the administered questionnaire were evaluated. Face validity was evaluated using expert opinions and a pilot study. Content Validity Index (CVI) was calculated to determine content validity using the opinions of eight experts and the Lawshe method. Cronbach alpha method was used to assess reliability using a sample of 30 PWDs. The Cronbach's alpha coefficient value for each dimension of utilization, availability, and affordability was 0.81, 0.72, and 0.80, respectively.

Data Analysis

Data analysis was administered using central tendency indicators (mean, standard deviation, etc.), and multiply regression, to investigate the association between background factors and demographic information with dimensions of access, by SPSS version 17. Statistical significance was considered when $p\text{-value} < 0.05$.

Results

Of all participants, 281 (60%) were female, mostly older than 60 years ($n=252$; 54.2). Also, 200 (42.6%) participants were married, 357 illiterate (76.1%), and mostly unemployed ($n=432$; 92.5%). In addition, for nearly 90%, the monthly income of the head of the household was less than 20 million Rial. Meanwhile, 20% of participants were head of the household. Eighty-two percent were receiving financial aids. For 54% of subjects, the age of disability was higher than 60 years. Physical disability was the most common form (78%). Ninety-three percent had basic health insurance coverage, and 78% were subscribed to a complementary health insurance fund. In addition, 95% of them owned a house, mostly (70%) with an area of 50 to m^2 (Table 1).

Table 1

Demographic characteristics of participants

percentage	number	variable		percentage	number	variable	
6/36	93	Less than 10 million Rial	Income of the head of the household	40	188	Male	Gender
1/53	135	10 to 20		60	281	Female	
3/10	26	More than 20	Head of the household	3/11	53	16 tp 29 years (young)	Age Group
1/20	94	The disabled person		5/34	162	30 to 60 years (adult)	
1/26	122	Father		2/54	254	Older than 60 years (elder)	
15	70	Wife		6/42	200	Married	
9/25	121	Child	3	14	Divorced		
13	60	Other (brother or mother)	3/31	147	Not married		
18	84	Yes	Financial aid	23	108	Other	Education Level
82	385	No		1/76	357	Illiterate	
1/5	24	From birth	Age of disability	1/19	90	Less than diploma	
2/6	29	Less than 30 years old		4/3	16	Diploma	
5/34	162	30 to 60 years		4/1	6	Higher than diploma	
2/54	254	Older than 60 years		1/1	5	Full-time	
93	436	Yes	Primary insurance coverage	9/6	32	Part time	
7	33	No		5/92	432	No	
3/21	100	Yes	Complimentary insurance coverage	5/53	251	Physical	Type of Disability
7/78	369	No		5/27	129	Cognitive	
7/10	50	Less	Area of	17	80	Physical	

		than 50 meter	residence			and cognitive	
9/68	323	50 to 100 m		7/94	444	Personal	Residence status
4/16	77	100 to 150 m		3	14	Rental	
1/4	19	150 to 200 m		3/2	11	Other	

The mean score of healthcare services utilization was 8.91 ± 6.86 ; 296 subjects (63%) evaluated this dimension as strongly low, and only four (1%) selected a high score. For the dimension of availability, the mean score was 14.54 ± 2.3 , the majority of subjects evaluated this dimension as low ($n=301$; 64%), and only two mentioned a high availability. Eventually, the mean score of the affordability dimension was 51.91 ± 8.78 . Two hundred and eighty (59.7%) subjects evaluated this dimension as moderate, and six (1.3%) as strongly low (Table 2).

Table 2

Mean and distribution of access to healthcare services

The results of the regression analysis indicated the significant contribution of utilization ($F=2.351$; $P=0.007$), availability ($F=4.812$; $P=0.001$), and Affordability ($F=2.129$; $P=0.016$). Also, being married presented a significant impact on utilization ($P<0.05$). Variables of education level, house ownership, financial aid, and residency area presented a positive effect on the availability of services, and a reverse effect was found for the income of the head of the household ($P<0.05$). Meanwhile, gender (female), older age, and being head of the household had a positive effect on affordability ($P<0.05$)(Table 3).

Table 3

Results of the regression analysis of various dimensions

Variable		Sub-Group (Score)	N	%	Mean	SD
Dimensions of access to healthcare services	Utilization	Strongly low zero to 10	296	1/63	91/8	86/6
		Low, 10 to 20	133	3/28		
		Moderate, 20 to 30	24	1/5		
		High, > 30	4	1		
		No response	12	5/2		
		Sum	469	100		
	Availability	Strongly low zero to 10	29	1/6	54/14	3/2
		Low, 10 to 15	301	1/64		
		Moderate, 15 to 20	134	5/28		
		High, >20	2	5/0		
		No response	6	3/1		
		Sum	469	100		
	Affordability	Strongly low, < 30	6	3/1	91/51	78/8
		Low, 30 to 45	98	9/20		
		Moderate, 45 to 60	280	7/59		
		High, >60	85	1/18		
		No response	0	0		
		Sum	469	100		

Variables	Utilization			Availability			Affordability		
	Beta	T	p	Beta	T	p	Beta	T	p
Gender	-653/0	-651/0	516/0	476/0	719/1	087/0	709/2	264/2	025/0
Age	055/0	569/1	118/0	019/0	937/1	054/0	096/0	308/2	022/0
Marital status	-268/1	-99/2	003/0	-069/0	-605/0	546/0	186/0	378/0	706/0
Education level	051/0	061/0	951/0	-596/0	-495/2	013/0	-809/0	-820/0	413/0
Employment status	648/0	342/0	733/0	706/0	349/1	179/0	-670/0	-295/0	768/0
House ownership	-378/0	-538/0	591/0	457/0	367/2	019/0	-808/0	-965/0	336/0
Income of the head of the household	342 ⁻⁸ /2	033/0	973/0	284 ⁻⁷ /6	-312/3	001/0	384 ⁻⁷ /3	411/0	681/0
Household	012/0	022/0	983/0	-071/0	-464/0	643/0	-319/1	-984/1	048/0
Financial aid	596/1	077/1	283/0	225/1	050/3	003/0	890/0	511/0	610/0
Primary health insurance coverage	-735/0	-428/0	669/0	-223/0	-471/0	638/0	-858/2	-392/1	165/0
Complimentary health insurance coverage	-849/0	-705/0	482/0	185/0	564/0	574/0	911/1	342/1	181/0
Residence area	020/0	038/1	300/0	029/0	358/5	001/0	044/0	889/1	060/0

Discussion

This study demonstrated the low level of PWD's access to healthcare services in rural areas of Iran. In addition, background factors and socio-financial determinants, including gender, age, marital status, education level, residence status, the income of the head of the household, financial aid, and residency area, presented a significant effect on financial access.

Concerning the availability dimension, more than 70% of PWDs evaluated this dimension as strongly low and low, with the highest-burden on health posts. PWDs also require rehabilitative services and psychological support, which are not available in health posts or other rural healthcare centers. A study conducted on caregivers of PWDs in Australia also reported similar findings, while emphasizing the necessity of addressing traveling a long distance and long waiting times, not to mention high expenditures (8). For 63% of PWDs, the utilization rate was strongly low, with general physicians as the primary provider (67.8%). As rehabilitative and psychological services are primarily providing by the private sector, particularly in small cities and counties, it can be argued that either PWDs are deprived of such services or pay high costs and wait for long hours (7, 8). Concerning families' experiences with a PWD member, Raeis-Dana et al. (14) reported shortages in

psychological and supportive services as a significant barrier. Noteworthy, the WHO emphasized more equitable access of PWDs to rehabilitative and psychological services through public centers (15).

The Iran health system's extended health network has resulted in high rates of PWDs identification, particularly in rural areas. However, there is no comprehensive plan to provide affordable and in-home services to them. In this line, 68% of PWDs reported not using in-home services. On the other hand, they receive such services from the private sector while paying high costs. In addition, 80% of subjects declared unavailability of telephone or internet scheduling or telecommunication services. About 60% of participants are deprived of health services due to the lack of information, revealing a significant challenge for PWDs. Lack of appropriate communication strategies has intensified this challenge (14). Some studies mentioned that low awareness of health staff about the health needs of PWDs and lack of comprehensive training programs are major factors contributing to this issue (14). Furthermore, restrictions imposed to control the Covid-19 pandemic, including canceling several elective services, resulted in declined access of PWDs to healthcare services (5). These issues indicate the necessity of strengthening electronic systems required to provide supportive and psychological services.

Concerning affordability of healthcare services, 80% of participants mentioned moderate and low levels; meanwhile, 79% of them did not have complementary health insurance coverage. In a study on reasons for not receiving healthcare services, Rezapour et al. (16) mentioned high costs, long waiting times, self-medication, long traveling distance, not having insurance coverage, and unawareness about healthcare centers. Addressing this issue requires particular attention of policymakers to complementary health insurance coverage of PWDs, which plays a significant role in meeting their unmet health needs, translating into improved health status and living conditions.

Utilization of specialized services and obtaining prescribed medicines are other important dimensions of financial access to healthcare services. In this regard, 33% of PWDs declared borrowing money to pay their health expenditures. Similar results are reported by studies performed in South Africa and by United Nations (7). In addition, 10% of them declared selling their commodities. Meanwhile, PWDs and their caregivers or companions faced a 24–56% decline in income due to referring to healthcare centers. Two factors should be considered when interpreting this finding: (a) access to specialized services is a challenging issue in rural areas, similar to Australia (8); and (b) the price and income elasticity of drug demand is less than one in Iran, which indicates the necessity of receiving such services (17–19).

Lack of primary and complementary health insurance coverage translates into increased out-of-pocket payments (OOP) and a low tendency to utilize healthcare services. Meanwhile, primary health insurance plans of Iran do not provide appropriate coverage for services and drugs related to PWDs, which is consistent with some previous studies (20, 21). In some countries, such as Canada and United States, special benefit packages are developed for covering services related to PWDs, including medicines, medical devices, transportation, and even guide dogs (22, 23).

According to the findings of the regression model, benefiting from primary and complementary health insurance coverage has a significant impact on all three dimensions of financial access, which was not statistically significant for each of them. Similar results are reported by Rezapour et al. (18) and Sharifian-Sani (24). There are evidence indicating the positive effect of benefiting from health insurance coverage on the utilization of healthcare services among the poor (25, 26). Definitely, health insurance coverage declines OOP,

leading to increased utilization. The variable of age presented a significant association with financial access. Falkingham et al. (27) showed that utilization of healthcare services differs based on age so that younger and older individuals have higher levels of utilization. In addition, education level also presented a significant effect on access to healthcare services, particularly for the dimension of availability.

Nevertheless, Rezapour et al. (16) found no significant association between the education level of the household and access to required healthcare services. Evidence show a significant association between education and utilization of healthcare services up to a Diploma and a non-significant association for those with a university degree (20). The Residency area also presented a significant effect on access to healthcare services, particularly the availability dimension, which can be attributed to the household's type of residence and economic status. This is consistent with Rezapour et al. (16), in which homeowner households had a higher chance of meeting their need (by 1.97 times) than others.

Income and financial aid positively affected access to healthcare services, particularly regarding availability dimension. In a study in China, Ma and McGhee mentioned economic status (low income) as the variable with the highest impact on health-related quality of life among all socioeconomic factors (28). Ataguba, which intended to investigate income inequality in South Africa, mentioned inappropriate concentration of good health among the rich compared to the poor (29). Income is the most important determinant of health and is the prerequisite for access to other factors affecting health, such as housing, nutrition, and education. Low-income and poor people often have low living standards, translating into the low financial ability to afford health expenditures, inadequate nutrition, and low education levels.

Low income reduces a person's searching behavior, leading to declined access to healthcare services (30). On the other hand, income, in addition to indicating social prestige, is also an indicator of access to various resources such as financial ability to obtain health insurance coverage and utilization of healthcare services (31, 32).

Conclusion

This study demonstrated people with disabilities are faced several barriers in accessing healthcare services, including lack of a comprehensive benefit package and complementary health insurance coverage, low quality of services, unavailability of in-home services, challenges for accessing specialized services, and obtaining prescribed medicines. These issues indicate the necessity of planning to improve PWD's access to healthcare services, including improving pooling resources related to PWDs, developing need-based benefit packages, and using the co-payment mechanism. As a significant policy goal, improved access to healthcare services can decline the negative impacts of poverty and inequality. However, the identification of PWD's challenges in accessing healthcare services indicates the progress towards achieving this goal. Health policymakers should identify households with a PWD member to improve the financial access to healthcare services, particularly those living in deprived areas, those younger than 18 and older than 60 years old, and those suffering from chronic diseases.

Declarations

Authors' contributions

All authors participated in this study. Sayyed-Morteza Hosseini-Shokouh wrote the article. Lida Shams and Tahere Darvish participated in the research work. Lida Shams is the lead of the research work. Taha Nasiri contributed to revising the article.

Ethics approval and consent to participate

Written informed consent was obtained from all participants before entering the study and after a comprehensive introduction to the study protocol. In addition, all participants were ensured about the confidentiality of their information. Also, the research purpose and methodology were subjected to scrutiny by the Internal Research Ethics Committee of Shahid Beheshti University of Medical Sciences (code: IR.SBMU.SME.REC.1397.004). I can you confirm that all methods were performed in accordance with the relevant guidelines and regulations.

Consent for publication

All the authors have read the article and have no problem with printing it and agree to publish it in this format.

Availability of data and materials

All data generated or analysed during this study are included in this published article [and its supplementary information files]. For this research, the ethics committee has received permission from Shahid Beheshti University of Medical Sciences. This indicates that all ethical processes and considerations are included in this research. Since this questionnaire was filled out by people, they certainly had enough satisfaction and they did it. This questionnaire was completed by the researcher through face-to-face interviews with people with disabilities. Therefore, according to the completion of the questionnaire by the researcher, the problem of illiteracy will be solved. Also, for research involving human participants that are illiterate, informed consent have been obtained from a parent and/or legal guardian. I assure you that all the ethical steps in the research have been observed. Ethical committee certificate confirm this subject.

Consent to publish

Not applicable

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Competing interests

The authors have no conflicts of interest to report for this study

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