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Investigating the Factors Affecting Health Services Utilization in Hepatitis B Patients of Yazd City in 2017

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ABSTRACT

Background: We can achieve a clear picture of the demands for services and the ways to respond to them by examining the status of health care services in patients with hepatitis B. In this way, we can minimize the gap between the promotion and improvement of the performance of service providers. Therefore, the aim of this study was to evaluate the utilization of healthcare services in patients with hepatitis B.

Methods: This cross-sectional study was conducted among 464 patients with hepatitis B who were selected by simple random sampling using a researcher-made questionnaire containing 20 items, according to the study variables. We entered the data into the Excel software and analyzed them by STATA $_{13}$ software using descriptive statistical tests and linear regression.

Results: There was a significance association between the utilization of education and counseling services, specialist visits, clinical services, and the place of provision of services. In addition, the utilization of education and counseling services had a significant association with the supplemental insurance and the incidence of hepatitis B in the family. A significance relationship was also observed between the number of visits to the specialist and the type of occupation, educational level, and duration of diagnosis. Utilization of inpatient cares had a significant relationship with the place of residence and the basic insurance status.

Conclusion: Generally, the rate of visits to access the healthcare services is low among patients with hepatitis B. Considering the fact that this disease is special, we suggest the authorities to provide health care services in three preventive levels free of charge (by providing a health insurance card for the patients. Furthermore, the government needs to implement the national health insurance (NHI) and therefore does not receive the franchise. Patients should refer to specialist according to the general practitioner's opinion. They also should have access to the services during the evening.

Key words: Utilization of health services, Hepatitis B, Specific Patients

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Introduction

In 1946, the World Health Organization (WHO) constitution recognized the right to health for the first time.I In the introduction of this constitution, benefitting from the highest standard of healthwas considered as one of the fundamental rights of every human being . (1) According to Article 29 of the Constitution , the right to healthcare services, treatment, and medical care is recognized for all humanbeings officially and the goverment undertakes the responsibility to provide the healthy lifestyle for the community. (2) Meanwhile, reduction of the health inequality and availibility of healthcare services for different groups of people are the main goals of health policy makers. Likewise, in countries with the national health service, where public health coverage is available, there are differences in the utilization of services. (3).

One of the prerequisites for equal availability is awareness about the current status of health utilization in the community. Unfortunately, few countries have collected comprehensive information on this issue, and this has been neglected especially in developing countries. (4) Probably, understanding the context of healthcare utilization, especially in relation to chronic diseases, can provide useful information on healthcare utilization. Furthermore, it can collect important information on the type, source, and extent of health care services used by people in order to reform the healthcare system and allocate resources.

In this regard, we need to evaluate the status of chronic patients' utilization of healthcare services and depict a clear vision about their service demands, ways to respond to such demands, and responsiveness of the service delivery system, such as the provision of specialized staffs to render services to patients. Therefore, we can minimize the present gaps in the promotion and improvement of the performance of specialist services providers among chronic patients. (5) Hepatitis B is one of the most important causes of acute and chronic liver diseases. (6) Acute infection is symptomatic or asymptomatic and may lead to sudden death. In addition, it can emerge as cirrhosis, liver failure, or liver cancer and cause mortality. Hepatitis B virus is known as the second cause of carcinogens after tobacco and is the 10th cause of mortality in the world (7). Annually, about one million people die from the hepatitis B infection (8). Among 350 to 400 million people worldwide have chronic hepatitis B. Different regions of the world are divided into three parts regarding the prevalence (%age of people with hepatitis B antigen (HBSAg)) of this disease: low (2% -1%), moderate (2% -8%), and high (20% -8%). (9)

A sample of the required measures for patients with hepatitis B includes:

- ✓ Educating and counseling of patients in the field of prevention in family, advice on not donating blood, separation of personal sharp appliances.
- ✓ Determination of the liver function by performing alanine aminotransferase (ALT), aspartate aminotransferase (AST), timing prothrombin (PT), albumin (Alb) platelet (PLT) ultrasound, and alpha-fetoprotein (α FP) tests in healthy carriers every 6-12 months and men over 40 years, especially with the family history of hepatocellular carcinoma (HCC). Conduction of alpha-fetoprotein test (αFP) and ultrasound test every six months or every 6-12 months. In the case of having abnormal test results, the patient is required to visit a specialist.
- ✓ Vising a physician to diagnose the status of infection in the cases of chronic hepatitis and having follow ups for the next 6 months after the chronicity of the disease.

Determine the patients requiring treatment (people with cirrhosis, chronic hepatitis, and fulminant hepatitis) and referring them to a specialist. (10)

The referral of people to access outpatient or inpatient cares, use of hospital, healthcare centers, and medical care services is called health services. (11) In order to provide health services, target groups (hepatitis B patients) and

their required services (3) should be identified in the health department. One of the goals of determining the demand in the health department is to identify the factors that have a major effect on the utilization of healthcare services. Demand analysis and utilization of health services can be the basis for policy makers in this department. (12)

Efficient factors on utilization of healthcare services included: availability, demand intensity, acceptability, and appropriate pricing. Efficient factors on availability include: availability of service, awareness about service provision, service provision time, and affordability. Efficient factors on demand intensity include: believe in health interventions, duration and severity of disability, the interval between disability and the present time, and the interval between death and the present time. Efficient factors on acceptability of services include: respect for the rights of the recipient of service, the impact of the service and its lack of complication, the acceptability of personnel and the place of service provision, as well as meeting the expectations of the service receiver. The effective factors on appropriate pricing include: the economic power of the community, the price of similar services, the demand intensity, and the comprehension of services' quality. (13)

One of the similar studies in the area of health services' utilization conducted in Iran was a study over the effective factors on the availability and utilization of healthcare services in Kerman in 2014. The results of this study showed that important variables such as household economic status and education, insurance, and presence of individuals over 65 and below 12 years in the family had important role in utilization of healthcare services. (14) A similar study conducted abroad was a study on the determinant factors in utilization of healthcare in England in 2005, the results of this study showed that disease, age, gender, income, education, economic activity, social class, ethnicity, and supply influenced the utilization of services. The type of disease also had a potential positive effect on four types of services' utilization (general practitioner (GP) visits, specialist visits, outpatient visits, and inpatient cares). (15)

Chronic diseases are considered as effective factors on utilization of healthcare services .(16) Furthermore, experts considered hepatitis B as a specific disease with its chronic conditions, lack of definitive treatment, medical expenditures, and requirement for complex technologies and treatments. Moreover, healthcare services should be free of charge (by providing a health insurance card) for vulnerable patients, including those with hepatitis B. In addition, by implementation of the Public health services insurance in Iran, hepatitis B patients with Iranian nationality should not be charged with franchise. (17)

Hepatitis B patients should be referred to specialties every six months, however, the evidences indicated that the patients would not have enough visits without observing the mentioned ideas. So, we investigated the efficient factors on the utilization of healthcare services among patients with hepatitis B in Yazd. In this regard, we identified the relationship between effective factors on healthcare services. Furthermore, we recognized the most important efficient variables on the utilization of the required services among the participants. The results can be used as a basis for decision makers and policy makers to allocate resources and opportunities regarding patients with hepatitis B.

Materials and Methods

This descriptive-analytic study was conducted with a cross-sectional design in 2017. The statistical population included people with hepatitis B in Yazd. Shahid Nasiri's healthcare center is the only reference center for hepatitis B patients in Yazd. Therefore, the identified cases are referred to this center from hospitals, laboratories, healthcare centers, clinics, and other centers by experts of the health centers (so far, 1,300 patients were identified in Yazd).

According to the sample size formula, by application of the simple random sampling, considering the significance level of 5 %, test power of 80 %, and the odds ratio of OR = 2, we evaluated 440 individuals. Participants were selected among the volunteer patients with adequate mental capability.

In order to collect the information, we distributed a questionnaire with 20 items among the participants. In addition to the demographic information, we evaluated the status of healthcare services' utilization in five areas of education and counseling services, general physician (GP) visits' services, specialties' visit services, clinical services, as well as inpatient care and its effective factors. Face validity of the questionnaire was confirmed by 10 professors and experts. In order to measure the content validity, we distributed the questionnaire among 15 people and resolved its problems according to their ideas. We explained the purpose of the research to participants before administrating the questionnaire, ensured them about confidentiality of information, and obtained patients' consent forms. In addition, the participants were informed that their participation in the study was optional. Furthermore, we used the self-report method in completing the questionnaire and 10 minutes was allocated to this purpose. Initially, the data were entered into Excel software and analyzed using $STATA_{13}$ software. The descriptive statistics and linear regression tests were also run. It is necessary to mention that this study tried to comply with Helsinki declaration principles. Also, informed consent was obtained before completing the questionnaires.

Results

In this study, 464 people participated. The results showed that 53.23 % of participants were male, 46.77 % were female, and 91.81 % were married. The participants were in the age range of 12-85 years and 59.66 % of them were in the middle age range of 30-60 years. Furthermore, 42.03 % of the participants were unemployed. Most participants had an income between one and two million Toomans. In addition, 82.1 % of them lived in the city and their levels of education ranged from elementary to diploma (62.28 %). Most of them had four to six family members (54.31 %). Additionally, 89.47 % of participants had general insurance and 67.03 % of the participants had no supplemental insurance.

We found that 5-9 years passed from the diagnosis of the disease in 30.60% of patients. Most of them did not have comorbidity (59.48%) and did not have a history of hepatitis in their family (88.15 %). More than one-third of the patients did not have any information about the location (37.50 %) and time (85.36%) of visits. In addition, 41.72 % of the participants trusted the service providers and 51.29 % considered the services as efficient and without complications. The results of this study on the rate of visits to access the educational and counseling services indicated that 43.44 % of patients did not have any visits and 31.46 % had one to two visits, only 4.9 % of the patients referred more than three times.

Furthermore, the rate of visits to GP showed that 87.06 % of the patients did not refer, 11.42 % referred one or two times, and 1.5 % visited more than three times. The rate of visits to specialists showed that 43.53 % of patients did not have any visits, 28.23 % referred one or two times, and 23.28 % visited more than three times. The rate of referral to clinical services also indicated that 40.73 % did not have any visits, 35.12 % had one or two visits, and 24.13 % had more than 3 visits. The rate of inpatient care showed that 99.35 % did not have any inpatient treatment for hepatitis B disease, 0.43 % of patients were admitted once or twice, and only 1 % was admitted more than three times.

Based on the results of this study, the effect of demographic variables on the health services utilization on the studied patients is as follows: by increasing the patients' age, the number of education and counseling and general practitioner visit decreased; however, the number of specialist visit, clinical services, and

hospitalization increased. Women had more education, counseling, and general practitioner visit services than men, and the number of specialist visit services, clinical services, and women's hospitalization in women was lower than that of men. Moreover, employees had the lowest and self-employed subjects the highest number of referrals for education and counseling services than other occupations. Workers had the lowest and employees the highest number of referrals for general practitioner medical services. Employees had the lowest and workers the highest numbers of referrals for the specialist visit. There was a significant relationship between the specialist visit utilization in workers (P-value = 0.022). Employees had the lowest number of referrals for clinical services. Self-employed subjects had the highest and workers the lowest number of hospitalization services compared to the other occupations. The subjects with Master's degree and Ph.D. degree had the highest and those with primary education up to diplomas had the lowest number of education and counseling compared to others. Furthermore, those with Master's or Ph.D. degrees had the lowest and those with associate's degree and bachelor's degree the highest referral to the general practitioner compared to others. The patients with associate's and bachelor's degree had the lowest number of referral for specialist visits, which had a significant relationship (p-value = 0.03). The patients with Master's or Ph.D. degrees had the lowest and those with primary up to diploma degree the highest number of referrals for clinical services. The subjects with Master's or Ph.D. degrees had the highest and those with primary up to diploma degree had the lowest number of referrals for hospitalization services. By increasing household dimension, the number of education and counseling, general practitioner visit, specialist visit, and hospitalization services increased; therefore, there is a significant relationship between the amount of utilization and increasing household dimension for general practitioner services (p-value = 0.031). By increasing the household dimension, the number of clinical services reduced. Married subjects had more education and counseling, general practitioner visit, specialist visit, hospitalization, and clinical services than single subjects (Table 1).

With regard to the results of this study, the efficiency of appropriate pricing on the utilization of healthcare services among individuals in the study were so that individuals with general insurance had a less number of visits to receive education and counseling services, specialist visits, and inpatient care than those without general insurance. The rate of visits to use the inpatient cares for patients with general insurance had a significance relationship (P-value = 0.007). In addition, patients with general insurance had more number of visits to GP and received more clinical services than those who did not have insurance. Individuals with supplemental insurance had more education and counseling services, GP visits, clinical services, and inpatient cares than those without supplemental insurance. There was a significance relationship between the rate of education and counseling utilization (P-value = 0.005). (Table 2)

According to results of this study, the efficiency of the demand intensity on the health cares was so that by increasing the time passed from the diagnosis, the number of GP visits, clinical services, and inpatient cares increased. However the number of education and counseling services and the specialist visits decreased, which had a significance relationship with the utilization of specialist services (p-value = 0.031). There were less number of visits to GP and specialist, and more number of visits to receive education and counseling, clinical services, and inpatient cares among patients with just hepatitis than patients with comorbidity. Furthermore, individuals without history of hepatitis B in their family had higher rate of visits for education and counseling services, and visits to GP, specialist, clinical services, and inpatient cares than those with incidence of

hepatitis B in their family. There was a significance relationship with the rate of utilization of education and counseling services among patients with incidence of hepatitis B in their family (P-value = 0.01) (Table 2)

According to the results of this study, the efficiency of access to health care services among the individuals were so that patients who lived in the suburbs and countryside had less number of visits for education and counseling services and less visits to specialist in comparison with city residents. There was a significance relationship between the rate of inpatient cares utilization in the suburbs and countryside residents (P-value = 0.255). People with more than one million Toomans of income had more visits to clinical services than people with less than one million income.

Similarly, people with an income of more than one million Toomans had less visits to receive education and counseling services, to specialists, and to receive inpatient cares in comparison with individuals with an income of less than one million Toomans. In terms of the place of visit, most patients referred to meet a specialist in both the public and private centers followed by the visits to the private centers, and finally the visits to the public centers, respectively. Furthermore, there was a significance relationship regarding this subject (P-value = 0.01, Pp-value = 0.026, P-value = 0.05).

The lowest number of visits to receive clinical services was related to the private centers and patients who referred to public centers followed by those who referred to public and private centers had the highest number of visits to receive the clinical services, which had a significance relationship (P-value = 0.034, P-value = 0.037). Primary, the most frequently visited place to receive the educational and counseling services was both public and private centers. The second place with the highest number of visits was, the public centers. Utilization of education and counseling services in those who referred to both public and private centers had a significance relationship (P-value = 0.045). In addition, the place with the highest number of visits to receive the GP services was both public and private centers. Considering the time of visit to use the evening services, the lowest number of visits was to access the education and counseling services. The highest number of referrals in the evenings was to visit GP, specialists, and to receive the clinical services.

According to the results of this study, the efficiency of acceptability on health cares were so that those who trusted the health service providers and had belief in the efficiency of services had higher number of visits to access all services in comparison with those who did not trust the service providers and did not believe in the efficiency of the services (Table 2).

Table 1. The results of linear regression on the rate of services' utilization in terms of demographic variables among patients in the study

			Education and counseling		General practitioner		Specialist		Clinical services		Inpatient care	
			Coefficients	P	Coefficients	P	Coefficients	P	Coefficients	P	Coefficients	P
Demographic Variables	age		- 0.003	0.27	- 0.0006	0.83	0.0009	0.9	0.006	0.35	0.003	0.31
	gender	Male(reference)										
		Female	0.17	0.19	0.065	0.6	- 0.007	0.98	- 0.14	0.57	- 0.024	0.58
	occupation	Unemployed(reference)										
		Employee	- 0.14	0.36	0.28	0.058	0.006	0.98	- 0.38	0.22	0.033	0.83
		Worker	0.27	0.11	0.061	0.7	0.93	0.022	- 0.13	0.68	-0.08	0.64
		Self-employment	0.28	0.071	0.023	0.87	0.2	0.57	- 0.12	0.69	0.1	0.51
		Retired	0.23	0.17	0.27	0.095	0.56	0.16	- 0.019	0.95	0.021	0.9
	Educational degree	Illiterate (reference)										
		Elementary to diploma	- 0.11	0.31	0.12	0.26	- 0.39	0.16	- 0.29	0.22	0.2	0.086
		Undergraduate and Bachelor	- 0.45	0.76	0.17	0.21	- 0.75	0.035	- 0.33	0.27	0.14	0.35
		Master and Ph.D.	0.6	0.81	0.062	0.79	-0.48	0.42	- 0.055	0.91	0.24	0.33
	Household size		0.04	0.06	0.044	0.031	0.018	0.7	- 0.018	0.67	0.003	0.86
	Marital status	Unmarried (reference)										
		Married	0.007	0.95	0.038	0.76	- 0.35	0.26	- 0.22	0.41	0.058	0.66

Table 2. The results of linear regression on the rate of service utilization in terms of the appropriate pricing, the demand intensity, availability of the appropriate pricing, and the acceptability of patients in the study

	Dependent variable		Education and counseling coefficients	(P)	General practitioner coefficients	(P)	Specialist coefficients	(P)	Clinical services coefficients	(P)	Inpatient care services coefficients	(P)
Appropriate pricing	General Insurance Status	Does not have(reference)										
		Has	- 0.013	0.91	0.053	0.64	- 0.23	0.25	0.26	0.27	- 0.32	0.007
	Supplemental insurance status	Does not have(reference)										
		Has	0.26	0.005	0.05	0.56	- 0.011	0.95	0.094	0.6	0.015	0.86
Demand intensity	Time passed from the diagnosis of disease		- 0.005	0.25	0.002	0.65	- 0.025	0.031	0.018	0.063	0.003	0.45
	Comorbidity	Has(reference)										
		does not have	0.01	0.89	- 0.05	0.44	- 0.012	0.95	0.066	0.68	0.07	0.38
	Incidence of hepatitis B in the family	Has(reference)										
		does not have	0.29	0.01	0.037	0.72	0.24	0.35	0.17	0.42	- 0.048	0.66
availability	Residence address	Urban (reference)										
		suburbs and countryside	- 0.11	0.22	0.14	0.1	- 0.02	0.89	0.18	0.34	0.21	0.025
	Family income per month	Lower than 1 million (reference)										
		one to two million	- 0.06	0.5	0.069	0.45	-0.082	0.71	0.17	0.37	- 0.097	0.31
		More than two million	- 0.16	0.18	-0.026	0.81	-0.076	0.79	0.27	0.26	- 0.13	0.26
	Location of services	Non-referral (reference)										
		public	0.76	0.09	0.42	0.32	2.23	0.035	1.91	0.034	- 0.024	0.95
		,private,	0.81	0.082	0.25	0.56	2.45	0.026	1.29	0.16	- 0.077	0.86
		both public and private	0.91	0.045	0.44	0.3	2.79	0.01	1.91	0.037	0.06	0.89
	Time of services	Non-referral (reference)										
		morning ,	- 0.064	0.88	- 0.028	0.94	- 0.19	0.85	0.039	0.96	0.011	0.98
		evening,	- 0.035	0.93	- 0.12	0.77	0.39	0.71	1.099	0.24	0.069	0.88
		both morning and evening	- 0.14	0.76	- 0.1	0.81	0.66	0.53	0.88	0.33	0.17	0.7
Acceptability	Trusting service providers	I do not have or have no idea(base)										
		Have	0.098	0.28	0.04	0.58	0.14	0.47	0.001	0.99	0.022	0.78
	Believe in the efficiency of services	Do not have any idea(reference)										
		Have	0.12	0.094	0.076	0.29	0.19	0.29	0.19	0.19	0.047	0.53

Discussion

In the current study, the lack of visits to use the services among patients with hepatitis was significant. The results indicated that 43.44 % them had no visits to receive the education and counseling services, 87.66 % did not visit GP, and 43.53%did not visit specialists. Fortunately, 99.35 % did not receive any inpatient cares due to the hepatitis. In families with chronic diseases, visits to private centers are less. Considering the fact that such patients require long-term cares and should pay high and constant medical expenditures, they should use public centers (17). Therefore, it can be concluded that lack of visits to use the service can be due to the specific conditions of hepatitis B disease.

The findings of this study showed that by increasing the patients' age, the number of visits to specialists, clinical services, and inpatient cares increased among patients with hepatitis B, which was in the same line with the results of the Thume study (18). Gholami (19) also concluded that by increasing the age, the number of tests increased, which was in the same line with the results of this study. The reasons can be due to the belief in the better quality and knowledge of specialists, the effect of comorbidity by increase of the age, and the problems of hepatitis B patients. Furthermore, as the age increases, the social and economic status of the households improves, which leads to more application of the specialized services. The study by BorhaniNezhad showed that by increase of age, the use of outpatient services decreased (5), which is in contrary with the results of our study. The reason may be due to the difference between the research populations and regions.

Females used more counseling and GP services than males. In the study of BorhaniNezhad , females visited for outpatient services more than males (5). Furthermore, in the Chang and Park study (20, 21), older women had more number of visits than men. In our study, the reason for higher visits of women is due to the fact that women are more susceptible to hepatitis B disease, some patients also referred due to pregnancy and the possibility of mother to child transmission of the disease. Therefore, they had more number of visits to remove their concerns and reach calmness.

According to the results of this study, the employees had the lowest number of visits to receive the educational, consulting and clinical services, as well as visits to the specialist. Ebadifardazar (12) concluded that the demand for outpatient services was lower in households that the father was an employee, which was in the same line with our stud.

The results indicated that people with elementary and doctorate education had less number of visits to specialists and used the clinical services less. The study of BorhaniNezhad (5) also showed that illiterate elderly people had more use of outpatient services which confirmed the findings of this study.

By increasing the number of members in the households, the number of visits to receive education and counseling services to GP, specialist, and inpatient increased, which was significant in visiting GP. Furthermore, by increasing the population of the family, visits to receive clinical services decreased. The results of Gholami study (19) showed that by increasing the family members, the number of visits to healthcare centers increased. We can conclude that the increase of the number of visits to GP and reduction of visits to specialist and reception of clinical services can be due to the reduction of the economic power of the family. The results of Noraiee's study indicated that the use of services increased in families with higher number of members, which was a result of household requirement. (16)

The number of visits to receive education and counseling services and to visit GP was higher in married individuals than the unmarried people. These results are in the same line with Borhaninezhad's results (5). However, the number of visits to specialists and clinical services was lower among married patients. Therefore, the high expenditures of specialist visits in private care centers as well as the high expenditure of diagnostic services are related to the low income

status of families. Furthermore, researchers found a significance inequality between rich people and reception of diagnostic services. The inequality index (ci) was equal to 0.11, which indicated a variable accumulation among the rich people (22).

Patients with general health insurance received less education and counseling services, specialist visits, and inpatient cares than those with supplementary insurance. In addition, Borhaninezhad showed that people with insurance received outpatient cares more (5). The current study indicated that patients with general insurance had less use of inpatient cares, which had a significance association. These results are different with the findings of Borhaninezhad study. (5) The reason was non-referral of patients with hepatitis B every six month for examinations. Therefore, the probability of inpatients increased among people without insurance considering the high expenditures of specialist visits, and tests.

The results of the current study showed that people with supplemental insurance had a higher number of visits for education and counseling services, GP, clinical services and inpatients. In addition, the results from Tajik study indicated that individuals with supplemental insurance used more diagnostic services (22), which were in the same line with the results of the current study.

The results of our study indicated that by increasing the time passed from the diagnosis of hepatitis B in patients, the number of their visits to specialist decreased, which had a significance relationship. However, the number of visits to GP as well as the number of clinical services and inpatient cares increased. This indicates that patients start to pay less attention to their disease over time, because hepatitis B does not have any pain or symptoms. So, they just refer for their periodic experiments and tests.

Our results indicated that patients with hepatitis B referred to GP and specialists less than those with comorbidity. In this regard, it seems that comorbidity is crucial for patients and leads them to avoid its disturbance throughout their lives by referring to health centers. Likewise, some patients with no comorbidity had high number of visits, which may be due to the fact that hepatitis B was the patients' priority.

According to the results of the present study, patients with no family history of hepatitis B referred to health centers more, because they had higher levels of stress and anxiety. Considering the fact that education and counseling are necessary for patients with new diagnosis of hepatitis B, we need to improve the role of education and counseling in the early diagnosis of the disease. Patients require education about the ways of transmission, prevention strategies, required measures, as well as relaxation and calmness strategies. These trainings are necessary to prevent from the unnecessary measures and expenditures.

According to the results, people living in suburbs and countryside had higher visits to GP , but less number of visits to specialist, lower education levels, and less number of counselling meetings due to the lack of availibility. Furthermore, patients in the suburbs and countryside used more clinical services. These may be due to their low income levels , lack of availibility to various health and medical services , and afliction by other epidemic diseases. The results of Gholami study showed a significance relationship between the residence area and the number of examinations. Families in more affluent areas performed more checkups than middle class families living in cheaper ereas (19).

The mentioned results were different from our findings in terms of GP visits and clinical services. This is because of the variety between the study populations and geographical regions. Regarding inpatient cares, a significance relationship was observed regarding the number of visits for inpatient services among patients in the suburbs and countryside. This result should be considered to avoid the possibility of admission due to the diseases' consequents in residents of the suburbs and countryside.

According to the findings, visits to both public and private centers, to private centers, and finally to public centers had the highest frequencies,

respectively. BorhaniNezhad and Ebadifar reported that private clinics had the highest number of visits by patients who needed the outpatient cares, because they believed such centers had better quality (5, 12). This is in the same line with the results of the current study. In addition, Pourreza showed that most people selected specialists in order to treat their disease (4), which is in the same line with our study and the study conducted by Laura(23).

The lowest number of visits was related to GP visits in this study. Rasoulinejad's study showed that 16.5 % of patients referred to GP to access services initially, which was different from the results of the current study. The reason of this discrepancy can be the differences in the requirements, culture, and access of the participants. By increasing the income levels of patients, their number of visits for education and counseling services, specialist visits, and inpatient cares decreased. However, low levels of income lead to increase in the number of clinical services, which was in the same line with Tajik study. Furthermore, the results indicated that richer people were more likely to use diagnostic services. It seems that the high costs of services such as laboratory, ultrasound, and polymerase chain reaction (PCR) testing among patients with hepatitis B caused people with lower economic power to have less referrals to access such services. The highest number of visits for patients with hepatitis B was to receive specialized care services and in the next stage to receive clinical services, which shows the importance of these two services from the patients' viewpoints. Regarding the education and counseling services, the highest number of visits was for patients who referred to both public and private centers.

The highest number of clinical services primarily belonged to the patients who visited both public and private clinics, which was followed by the patients who referred to public centers. This variable had a significance association. We observed the role of income on the number of patients' referrals to public centers, since such centers were cheaper. The group of patients who selected both public and private places in this study, referred to private clinics to visit the specialties ad referred to public centers to receive clinical services (due to the lower costs of tests).

We found that the highest number of referrals to visit GP was in the morning due to the availability of public centers in the morning. The lowest number of referrals to visit the specialist was in the morning, whereas the highest number was in the evening. Therefore, given the fact that the highest number of referrals to receive services and to visit specialists is in the evening, evening access to specialists should be provided for patients. In addition, the highest number of visits was in the evenings. According to the results, patients trusted all providers of education and counseling services, clinical services, and inpatient cares as well as GPs. Ultimately, the services of specialists and clinical services were the most efficient services for patients with hepatitis. From this point of view, GP services had the lowest rates.

The study conducted in Canada showed that the emergency conditions were the most important reason for visiting GPs, whereas, heart diseases and cancers (chronic illnesses) led to visit specialists or hospital services (24). The results are in the same line with current study. One of the main limitations of this study was the self-reporting of patients, which could mislead information.

Conclusion

People with chronic hepatitis B require long-term cares. Given the high and constant medical expenditures, patients had to use public services with lower costs or they may refuse visiting physicians. In this regard, health and medical policy-makers should implement some measures to identify chronic hepatitis B patients to improve the financial or economic accessibility of households to health services. Given the fact that hepatitis is a specific disease, health care services should be provided to patients at all stages of

prevention free of charge (by providing a health insurance card). Furthermore, franchise should not be received from the patients with hepatitis B after implementation of the general health insurance in Iran In addition, with respect to the referral system, patients should be referred from a GP to a specialist and healthcare services in the evening should be provided for them. Therefore, hepatitis B patients can have access to healthcare services at an acceptable level.

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Authors'Contributions

Montazeralfaraj A, Pakdaman M, Mojahed M designed study;, GHadiri Atbak M gathered data;, Falahzadeh H analysed data; All the authors wrote and approved the final manuscript.

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