

Original Research Article

Utilization patterns and satisfaction levels among beneficiaries attending Ayushman Bharat health and wellness centres in a coastal district of Tamil Nadu, India

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ABSTRACT

Background: “Ayushman Bharat” has its twin pillars of health and wellness centers (HWCs) and “Pradhan Mantri Jan Arogya Yojana” which looks at health holistically and lays significant milestone towards India’s path to universal health coverage. To ensure delivery of comprehensive primary health care, existing sub health centres and certain primary health centres were transformed to HWCs. Objectives were to assess the utilization patterns and measure the satisfaction levels among beneficiaries attending Health and Wellness Centres in rural and urban areas of Cuddalore district, Tamil Nadu, India.

Methods: A cross-sectional study was undertaken over a period of six months among 808 beneficiaries from eight of the newly upgraded HWCs of Cuddalore. A multi-stage stratified cluster sampling was employed. Data was collected by exit interviews using semi-structured questionnaire. Data entry and analysis was done by Epidata 3.1 and SPSS 21.

Results: Majority, 790 (97.7%) felt that healthcare providers were having a positive attitude towards them. In addition, 772 (95.5%) felt that doctors showed interest in them as a whole. About 320 (79.3%) beneficiaries attending rural HWCs were satisfied with the overall treatment received in comparison with 254 (62.8%) beneficiaries attending urban HWCs. The satisfaction level on the overall treatment received was low among urban HWCs beneficiaries.

Conclusions: Majority of the patients were satisfied with the health care services offered at HWCs and healthcare providers at HWCs.

Keywords: HWCs, Ayushman Bharat, Patient satisfaction, Health care services

INTRODUCTION

A person's health needs including physical, emotional, and social well-being, are addressed by primary health care, which is people-centred rather than disease-focused. Primary health care renewal and implementation had been committed as the cornerstone of a sustainable health system.¹ Universal health coverage means that all

individuals receive the necessary health services without facing financial hardship. It includes essential and quality health services, from health promotion to prevention, treatment, rehabilitation, and palliative care across life course.^{2,3}

In 1946, Bhore committee report advocated the current three-tier healthcare system in India. Since then, the

system has developed and has made significant strides in public health.⁴ In past decade, government's share of total expenditures for health was 1.15%, which was lower than the global average of GDP 4.02%. Consequently, 69% of all healthcare spending in India were out-of-pocket.⁵ Realizing the need for comprehensive primary health care which reduces mortality and morbidity at a much lower cost and significantly reduces the need for secondary and tertiary care, India has launched Ayushman Bharat in 2018 one of the most ambitious health missions ever to achieve universal health coverage.^{6,7}

“HWCs” and “Pradhan Mantri Jan Arogya Yojana” are the two pillars of “Ayushman Bharat” establishing key foundations for India's journey toward universal health coverage.^{8,9} The sub health centers (SHCs) and certain primary health centers (PHCs) were upgraded to HWCs in accordance with the notion that “time to care” should not exceed 30 minutes.¹⁰ In terms of gender equity for seeking care and promoting wellness as a crucial element of primary healthcare, HWCs show a high potential for beneficial outcomes.¹¹

There are no much of researches on these newly transformed HWCs till date. Hence, the current research aims to assess the utilization patterns and measure the satisfaction levels among beneficiaries attending HWCs in rural and urban areas of Cuddalore district, Tamil Nadu, India.

METHODS

Study design and setting

A multifacility-based, cross-sectional study was conducted at eight HWCs of a Cuddalore district in Tamil Nadu, Southern India which covered beneficiaries of around 1, 60,199 over a period of six months from October 2020 to March 2021.

Inclusion and exclusion criteria

Beneficiaries of all ages those came to HWCs in rural and urban areas of Cuddalore District were included. Seriously ill patients were excluded.

Sampling method

Multi-stage stratified cluster sampling method was used for the selection of HWCs and inclusion of participants. Each HWC was considered as 1 cluster and stratification was based on geographic locations (rural and urban). There was a total of 80 established HWCs in Cuddalore district. Eight HWCs (four in each stratum-rural and urban stratum) were selected by simple random sampling.

Sample size calculation

The required number of beneficiaries was calculated using the formula, $n = Z (1-\alpha/2)^2 pq/d^2$.¹² Considering 80%

the patients who attended health care centres in rural India were satisfied with the treatment, 5% absolute precision, average cluster size of 100, intra-class correlation of 0.02, design effect of 2.98 and 10% non-response rate, the minimum sample size required was 806 individuals.¹³ In order to represent study population equally from selected HWCs, 101 individuals were recruited from each of the eight selected HWCs.

Data collection and statistical analysis

The institutional health research committee, institute ethics committee approval (MGMCRI/Res/01/2019/12/IHEC/045) and administrative permissions from the directorate of public health and preventive medicine, government of Tamil Nadu were obtained before commencement of the research. Data was collected through personal exit interviews from the 808 beneficiaries to assess the healthcare utilization pattern and satisfaction levels about the treatment, facility's infrastructure and healthcare providers using a semi-structured questionnaire. Data entry was done in Epidata 3.1 and analysed using SPSS version 21. Written informed consents were sought from all beneficiaries. The data were presented in the form of numbers and percentages for qualitative variables and mean and SD/ median and IQR for quantitative variables. Appropriate tests of significance i.e., Chi-square test or Fisher's exact test was applied to find the association between various domains of beneficiaries' satisfaction (health care facility, health care providers and treatment received) and certain parameters such as socio-demographic characteristics, health seeking behaviour of beneficiaries and waiting time for receiving treatment at HWCs. Values of $p < 0.05$ was considered to be statistically significant. Binary logistic regression was used to find the predictors of patients' satisfaction under various domains.

RESULTS

The present study was conducted to assess the utilization patterns and satisfaction levels among beneficiaries attending HWCs in rural and urban areas of Cuddalore district over a period from September 2020 to August 2021. A total of 808 study participants who were the beneficiaries of the selected health and wellness centres were included for the study. The results are depicted below under following subheadings.

Socio-demographic details and morbidity profiling of the beneficiaries

The socio-demographic profile of the beneficiaries attending HWCs has been given in Table 1. The mean (SD) age of beneficiaries was 42.7 (19.7) years.

Around three-fourth, 622 (76.9%) of beneficiaries visited the HWCs for same ailments. Whereas, 519 (64.2%) visited the HWCs previously for some other ailments in

the past. Among the 808 beneficiaries, 461 (57.05%) reported presence of existing co-morbidities in them. 150 (71.7%) of the diabetics and 120 (65.1%) of hypertensive patients had their medication regularly. 8 (61.5%) of patients with bronchial asthma were neither regular nor irregular with their medication. The 59 (34.9%) hypertensive patients, 8 (38.1%) and 59 (28.3%) of thyroid disorder and diabetic patients respectively were irregular in taking their medication.

About 14.4% visited for immunisation services which also included COVID-19 vaccination. More than two-third, 657 (81.3%) taking Allopathic medications. Nearly, 102 (12.6%) of them had taken homeopathy medications for their complaints. Only a small proportion of the beneficiaries, 30 (3.7%) and 19 (2.4%) had received Ayurveda and Siddha medications respectively. More than half of beneficiaries, 250 (53%) were recommended by family members, followed by friends in 130 (27%) and neighbours in remaining 73 (15%) of beneficiaries.

Patient treatment satisfaction under various domains

Beneficiaries' reason for choosing the current health facility has been portrayed in Figure 1. Majority, 355 (87.8%) were satisfied with the OPD timings at urban HWC which was 382 (97.1%) at rural HWCs. Seating arrangements provided at the health facility was the reason for satisfaction among 382 (97.1%) and 395 (97.8%) beneficiaries in urban and rural areas respectively. Whereas, cleanliness and ventilation of the urban HWCs were the other reasons for satisfaction among 387 (95.8%) and 343 (84.9%) of beneficiaries respectively in urban areas and 397 (98.3%) and 383 (94.8%) of beneficiaries respectively in rural areas.

About 320 (79.3%) of the beneficiaries attending rural HWCs were satisfied with the overall treatment received in comparison to 254 (62.8%) beneficiaries attending urban HWCs. The satisfaction level on the overall treatment received was low among urban HWCs beneficiaries which has been illustrated in Figure 2.

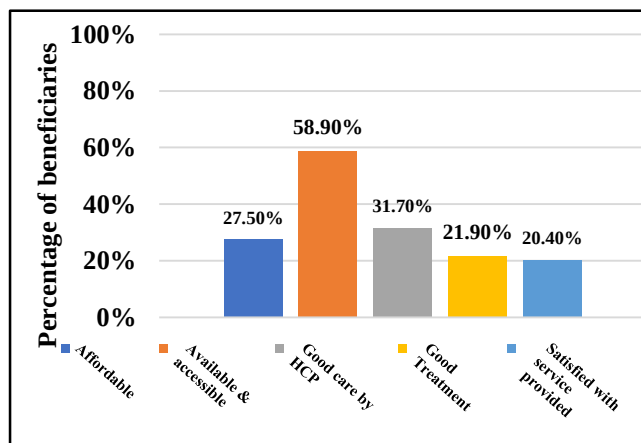


Figure 1: Beneficiaries reasons for choosing the current HWC, (n=808).

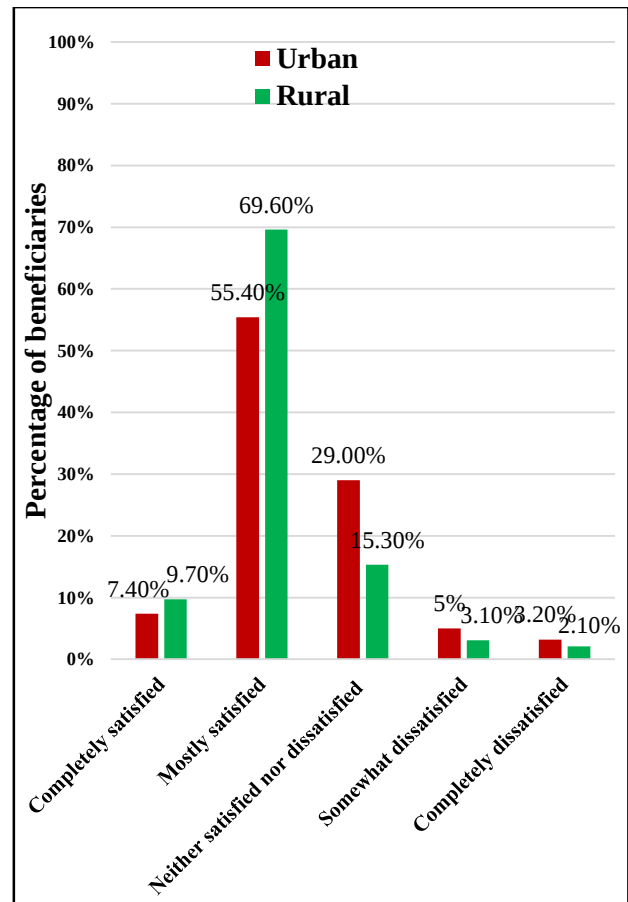


Figure 2: Satisfaction level on overall treatment received among the beneficiaries attending HWCs, (n=808).

Determinants of patient's satisfaction on health care facility, health care providers and medical treatment are mentioned in Table 2 and 3. Improvement in patients medical condition after treatment, spending money to reach the health facility, reduced waiting time for doctor consultation and less waiting time at pharmacy to receive drugs were found to be significant factors for patients satisfaction under various domains.

Determinants of patients' satisfaction regarding health care providers and overall treatment satisfaction

The independent variables which had $p < 0.05$ in univariate analysis were included in the binary logistic regression model. Binary logistic regression was done to find out the factors influencing satisfaction of beneficiaries regarding health care providers and overall treatment satisfaction of beneficiaries which has been represented in Table 2 and 3. The model explained a 72% ($R^2=0.72$) of the variance in this sample with a Hosmer and Lemeshow goodness of fit test, $p=0.648$ for health care provider satisfaction and the regression model explained a 67% ($R^2=0.67$) of the variance in this sample with a Hosmer and Lemeshow goodness of fit test, $p=0.706$ for overall treatment satisfaction. Beneficiaries improving in health condition after treatment were 10.27

times (C.I: 3.342-31.604) satisfied with health care providers in rural HWCs and 5.93 times (C.I: 2.324-15.134) satisfied with health care providers in urban HWCs compared to those not improving on medication in rural and urban HWCs. Similarly, rural beneficiaries who did not spend money to reach health care facility were 3.14 times (C.I: 1.914-5.181) satisfied with health care providers than those who spent money to reach HWCs (Table 4).

Similarly, beneficiaries improving in health condition after treatment were 6.35 times (C.I: 2.313-17.472)

satisfied with the overall treatment received from urban HWCs compared to those not improving on medications. Similarly, beneficiaries improving in health condition after treatment at rural HWCs were 3.88 times (C.I: 1.376-10.946) satisfied with the overall treatment they received than those not improving on medications.

Semi-skilled, unskilled and unemployed beneficiaries were 1.99 times (C.I: 1.229-3.250) satisfied with the treatment provided at urban HWCs compared to patients who belong to the category of skilled workers and above (Table 5).

Table 1: Distribution of beneficiaries attending HWCs based on socio-demographic characteristics, (n=808).

Socio-demographic characteristics	N (%)
Age (in years)	
≤18	98 (12.1)
19-35	203 (25.1)
36-59	314 (38.9)
>60	193 (23.9)
Gender	
Male	347 (43)
Female	461 (57)
Education	
Illiterate	151 (18.8)
Literate	657 (81.2)
Occupation	
Unemployed	7 (0.9%)
Employed	801 (99.1)
Marital status	
Married	609 (75.4)
Others (Divorced, single and widow)	199 (24.6)
Socio economic status (Modified BG Prasad scale)	
Upper class	94 (11.6)
Upper middle class	160 (19.8)
Middle class	219 (27.1)
Lower middle class	349 (30.8)
Lower class	86 (10.6)

Table 2: Determinants of patients' satisfaction in rural HWCs, (n=404).

Determinants	Satisfied, N (%)	Not satisfied, N (%)	Total, N (%)	OR (95% CI)	P value
Association between health seeking behaviour and satisfaction regarding health care facility					
Improvement of medical condition after treatment					
Yes	346 (89.2%)	41 (10.8%)	387 (100%)	3.516 (1.179-10.48)	0.045*
No	12 (75.0%)	5 (25.0%)	17 (100%)	Ref	
Money spent to reach the facility					
No	194 (91.9%)	17 (8.1%)	211 (100%)	2.018 (1.070-3.803)	0.028*
Yes	164 (85.0%)	29 (15.0%)	193 (100%)	Ref	
Association between health seeking behaviour and satisfaction regarding health care providers					
Improvement of medical condition after treatment					
Yes	292 (75.3%)	96 (24.7%)	388(100%)	6.692 (2.268-19.744)	0.001*
No	5 (32.3%)	11 (67.7%)	16 (100%)	Ref	
Money spent to reach the facility					
Yes	174 (82.5%)	37 (17.5%)	211 (100%)	Ref	0.001*
No	123 (63.7%)	70 (36.3%)	193 (100%)	2.676 (1.689-4.241)	

Continued.

Determinants	Satisfied, N (%)	Not satisfied, N (%)	Total, N (%)	OR (95% CI)	P value
Association between health seeking behaviour and patients' satisfaction on overall treatment					
Improvement of medical condition after treatment					
Yes	312 (80.4%)	76 (19.6%)	388 (100%)	4.105 (1.493-11.289)	0.003*
No	8 (50.0%)	8 (50.0%)	16 (100%)	Ref	
Money spent to reach the facility					
Yes	161 (83.4%)	32 (16.6%)	193 (100%)	Ref	0.046*
No	159 (75.4%)	52 (24.6%)	211 (100%)	1.645 (1.006-2.690)	
Association between patients' waiting time for treatment and satisfaction on overall treatment received					
Waiting time for doctor's consultation					
Less than 10 minutes	249 (83.0%)	51 (17.0%)	300 (100%)	2.269 (1.361-3.783)	0.001*
More than 10 Minutes	71 (68.3%)	33 (31.7%)	104 (100%)	Ref	
Waiting time at pharmacy for receiving medication					
Less than 10 minutes	257 (81.6%)	58 (18.4%)	315 (100%)	1.829 (1.067-3.133)	0.027*
More than 10 minutes	63 (70.8%)	26 (29.2%)	89 (100%)	Ref	

*Chi-square test, $p < 0.05$ considered as statistically significant

Table 3: Determinants of patients' satisfaction in urban HWCs, (n=404).

Determinants	Satisfied, N (%)	Not satisfied, N (%)	Total, N (%)	OR (95% CI)	P value
Association between health seeking behaviour and patients' satisfaction regarding health care providers					
Improvement of medical condition after treatment					
Yes	337 (89.2%)	41 (10.8%)	378 (100%)	7.045 (3.052-16.261)	0.001*
No	14 (53.8%)	12 (46.2%)	26 (100%)	Ref	
Association between waiting time to receive treatment and patients' satisfaction regarding health care providers					
Waiting time for doctor's consultation					
Less than 10 minutes	281 (89.8%)	32 (10.2%)	313 (100%)	2.634 (1.432-4.846)	0.001*
More than 10 Minutes	70 (76.9%)	21 (23.1%)	91 (100%)	Ref	
Waiting time at pharmacy for receiving medication					
Less than 10 minutes	311 (89.6%)	36 (10.4%)	347 (100%)	3.672 (1.890-7.133)	0.001*
More than 10 minutes	40 (70.2%)	17 (29.8%)	57 (100%)	Ref	
Association between socio-demographic characteristics and patients' satisfaction on overall treatment received					
Occupational status					
Semi-skilled and below	105 (69.1%)	47 (30.9%)	152 (100%)	1.544 (1.008-2.364)	0.045*
Skilled and above	149 (59.1%)	103 (40.9%)	252 (100%)	Ref	
Association between health seeking behaviour and patients' satisfaction on overall treatment received					
Improvement of medical condition after treatment					
Yes	248 (65.6%)	130 (34.4%)	378 (100%)	6.359 (2.492-16.225)	0.001*
No	6 (23.1%)	20 (76.9%)	26 (100%)	Ref	
Association between waiting time for treatment and patients' satisfaction on overall treatment received					
Waiting time for doctor's consultation					
<10 minutes	213 (68.1%)	100 (31.9%)	313 (100%)	2.598 (1.613-4.183)	0.001*
>10 Minutes	41 (45.1%)	50 (54.9%)	91 (100%)	Ref	
Waiting time at pharmacy for receiving medication					
<10 minutes	236 (68.0%)	111 (32.0%)	347 (100%)	4.607 (2.522-8.413)	0.001*
>10 minutes	18 (31.6%)	39 (68.4%)	57 (100%)	Ref	

*Chi-square test, $p < 0.05$ considered as statistically significant

Table 4: Binary logistic regression of factors influencing satisfaction regarding health care providers, (n=808).

Characteristics of satisfaction regarding health care providers	Sig.	Odds ratio	95% CI for odds ratio	
			Lower	Upper
Improvement in condition after treatment in urban beneficiaries	0.001*	5.930	2.324	15.134
Waiting time for doctors' consultation among urban patients	0.070	2.007	0.944	4.270
Waiting time at urban HWC pharmacy to receive medication	0.163	1.828	0.784	4.263
Improvement in condition of rural beneficiaries after treatment	0.001*	10.277	3.342	31.604
Money spent to reach the health care facility by rural beneficiaries	0.001*	3.149	1.914	5.181

*p<0.05 taken as statistically significant.

Table 5: Binary logistic regression of factors influencing satisfaction on overall treatment, (n=808).

Characteristics of overall treatment satisfaction	Sig.	Odds ratio	95% CI for odds ratio	
			Lower	Upper
Occupation of urban patients	0.005*	1.999	1.229	3.250
Improvement in condition of urban beneficiaries after treatment	0.001*	6.357	2.313	17.472
Waiting time for doctors' consultation among urban patients	0.023*	1.990	1.101	3.596
Waiting time at urban HWC pharmacy to receive medication	0.001*	3.885	1.825	8.143
Improvement in condition after treatment in of rural beneficiaries	0.010*	3.880	1.376	10.946
Waiting time for doctors' consultation among rural patients	0.050	1.796	1.000	3.226
Waiting time at rural HWC pharmacy to receive medication	0.405	1.304	0.697	2.439
Money spent to reach the health care facility by rural beneficiaries	0.221	0.724	0.432	1.213

*p<0.05 taken as statistically significant.

DISCUSSION

In the present research, the mean age of study participants was 42.7±19.7 years and 38.9% belong to age group 36-59 years followed by 25.1% in 18-35 years, 23.9% were >60 years and 12.1% were children. These findings were in contrast with earlier Indian studies.^{14,15} The variation in these findings can be mainly attributed to the difference in categorisation of age group adopted by the researchers.

In the current study, 57% accounted for females and 43% were males. Similar findings were noticed in a study conducted in rural Tamil Nadu.¹⁶ Similarities might be due to the fact that females are the ones who utilize the maternal and child healthcare services and the usually men being bread winner of the house might find difficulty in utilizing the morning OPD services.

A European study on factors associated with the utilization of primary health care services reported that 60.2% of respondents were suffering from non-

communicable disease. The 77.7% of respondents visited the health facility subsequently for regular follow-up and treatment.¹⁷ The findings were similar to the current study which can be substantiated with the epidemiological transition due to increasing non-communicable diseases and provision of monthly medications free of cost for NCDs at government health facilities.

A study led by Ramakrishnan et al in Tamil Nadu revealed that 91.9% of patients preferred allopathic medication, 6.4% choose siddha medications and only 0.3% received Ayurveda and homeopathy medication.¹⁸ In addition, it was documented that 95.0% of patients felt that the health facility was accessible. These results were comparable with present study as they were conducted in similar study setting.

In the present research, multiple reasons were recorded for choosing the HWC in which accessibility of the health facility ranked highest. Non-accessibility and non-feasibility were found to be main reasons for moving on

from the previous health facility to current health facility. Concurrent findings were seen in other Indian studies.¹⁹⁻²¹

A significant association between socioeconomic status, occupation of the urban beneficiaries and health care facility satisfaction ($p < 0.05$) was witnessed in this study. Parallel finding was seen in a study by Avinash et al.²² The current research identified significant association between occupation of the urban beneficiaries and their health care facility satisfaction. A study by Quyen et al published parallel finding where patient's satisfaction was determined by age, occupation, examination time.²³

In this study, socio-economic status was found to be a significant predictor of beneficiaries' health care facility satisfaction. Patients in lower socio-economic class were 2.8 times satisfied with the health facility compared to those in upper socio-economic class. Similarly, in a study from South Africa by Myburgh et al pointed out that both race and socio-economic status were significant predictors of levels of satisfaction with the services of the health care providers and respondents belonging to high socio-economic status were about 1.5 times more likely to report excellent services compared with respondents of low socio-economic status.²⁴

A Brazilian study reported that higher patient satisfaction was associated with gender, waiting time for appointment, treatment time and instructions that met patients' needs. Patients with less waiting time were 1.03 times satisfied compared to those with more waiting time for treatment.²⁵ Similarly in this study, higher health care facility satisfaction among urban beneficiaries was associated with waiting time for doctor consultation. Urban beneficiaries with less waiting time to consult doctors were 3.5 times satisfied with health care facility than those waiting for more time to consult doctor.

Beneficiaries' satisfaction regarding health care providers in this study was strongly associated with improvement in medical condition after taking treatment among the study participants. Likewise, there was a strong positive association between patient satisfaction level and healthcare provision indicators, such as relief of symptoms in a multi-centric study by Xesfingi et al.²⁶

The strength of this research is that, it is first of its kind with a larger sample size to assess health seeking behaviour, service utilization patterns and satisfaction levels of beneficiaries attending the newly upgraded HWCs. Multi-stage stratified cluster sampling has been followed to select HWCs and beneficiaries from both urban and rural regions of the district have been included. Hence, the findings can be generalized.

There are a few limitations of this study. First, interaction with patients during the times of COVID-19 pandemic certainly had an impact on the quality time spent with them during data collection. Second, use of a questionnaire involving Likert scale responses could have

exposed the participants to various types of self-report response bias.

This study recommends to increase the awareness among general population about the availability of the additional services offered at the HWCs. Prompt allocation of resources, adequate manpower and logistics to HWCs is need of the hour for more efficient functioning of these centres. National and state level policy makers and stakeholders need to take notice of this and provide appropriate measures. Patient satisfaction assessment should be conducted regularly to provide effective grievance mechanism for patients and betterment of the HWCs.

CONCLUSION

Majority of the study participants were satisfied with the services offered at the HWCs and with the health care providers working at the HWCs. This has reflected the impact of the transition of PHCs to HWCs delivering extended range of services. It was observed that low socio-economic status and nil expenses to reach the health care facility were a few facilitators for satisfaction regarding the health care facility. While, improvement in medical condition after treatment, waiting time for doctor's consultation, waiting time at pharmacy for receiving medicines and location of the HWCs were identified as significant determinants of satisfaction regarding health care providers. Likewise, improvement in condition of patient after treatment and waiting time for receiving treatment were factors determining the satisfaction with overall treatment at HWCs. COVID-19 pandemic has further more underscored the need for strengthening the primary health care at the earliest.

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