Assessment of the Time Utilization of the Community Health Officers (CHO) of Bhavnagar District, Gujarat: A Cross-sectional Study

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Abstract:

Introduction: To attain "universal health coverage" and "health of all", a new cadre namely Community Health Officer (CHO) was introduced at HWC (Health and Wellness Center). In the community, CHO serves as the initial point of contact and source of information for health-related issues. **Objective:** To assess the utilization of time of CHO at HWCs, Bhavnagar. **Method:** Out of 63 CHOs with experience of more than 1 year in Bhavnagar district, 30 CHOs were selected randomly for utilization of time. Each CHO was accompanied during their duty hours for all working days of a week. Time spent by a CHO in different activities was recorded. Data were analyzed by using Epi Info Software. **Results:** It was observed that on an average, CHOs remained on duty for 93% of their duty hours. Around 29.61% of their actual on-duty-time (per week) was used for the personal work, while 17.34% of their on-duty-time was used in OPD, 14.36 % in COVID-19 related work and 14.13% in administration work. **Conclusion:** The analysis revealed that CHOs spent 93% of their scheduled duty hours on the job. CHOs spent almost one third of their duty hours for the personal work.

Keywords: Ayushman Bharat, Health and Wellness Center, Utilization of time

Introduction:

Primary health care plays an important role in all disease. The primary health care system is the only practical and cost-effective means of achieving universal health coverage (UHC), according to the Report on Primary Health Care Task Force by Government of India.^[1] Only 15% of morbidities were covered by the public healthcare system, which forced the majority of people to seek treatment at district hospitals or in the private sector, incurring large out-of-pocket costs.^[2] About 17% of Indian households suffered poverty as a result of OOPE for health care.^[3]

According to a press release from the Ministry of Health and Family Welfare, India has a doctor-

population ratio of 1:834 as compared with the WHO standards of 1:1000. $\ensuremath{^{[4]}}$

About 26.2% of urban households and 32.5% of rural households seek government/ public hospital services for illnesses.^[5] India has committed to attain Universal Health Care for All by 2030, which is necessary for accomplishing the other Sustainable Development Goals. Universal health care involves making sure everyone has access to high-quality medical care, including preventive, educational, therapeutic, and palliative care, without facing financial hardship. Comprehensive primary health care (CPHC) is the most important concept for achieving "universal health coverage" (UHC) and "Health for All". To achieve this, government of India

Quick Response Code	Access this article online	How to cite this article :
	Website : www.healthlinejournal.org DOI : 51957/Healthline_623_2024	Prajapati K, Bhalani K. Assessment of the Time Utilization of the Community Health Officers (CHO) of Bhavnagar District, Gujarat: A Cross-sectional Study. Healthline. 2024;15(3): 241-246
Received : 21-05-2024 Accepte		d: 12-08-2024 Published: 23-09-2024

launched Ayushman Bharat programme. One of its components is converting all Sub Health Center (SHC) and PHC in to Health and Wellness Centers (HWC) for primary health care and other is to give health insurance up to 5 lakhs for secondary and tertiary level health care. To provide CPHC, government introduced a new cadre of Community Health Officer (CHO) in HWC.

A CHO is the first point of care or source of information for the health related issues for the community by the virtue of the proximity of HWCs to its catchment population. CHOs are broadly expected to perform the following three functions: 1. Clinical functions for ambulatory care and management; 2. Public health functions for health promotion, prevention and disease surveillance 3. Managerial Functions for efficient functioning of HWCs

It was about two years from posting this new cadre CHO in the primary health care system in Bhavnagar (Gujarat). It was interesting to know how this new cadre is utilizing their time to perform their duties in providing comprehensive primary health care. First CHO was appointed in the HWCs of Bhavnagar district in the year 2018. As the CHO is expected to play a crucial role in providing CPHC, this study was intended to assess the working hours of CHOs in order to assess the utilization of time of a CHO.

Method:

A Cross sectional study was carried out on assessment of utilization of time. Study was conducted by observing the CHOs of Bhavnagar district continuously during their working hours for all the working days of a week. The data collection was done during the period from 1st July 2021 to 31st September 2022.

A list of CHOs, who had completed at least 1 year of service, was obtained from Chief District Health Office (CDHO) of Bhavnagar district. There were 63 such CHOs. Out of them, 30 CHOs were selected randomly for the study by lottery method. To draw a judgment about a population (cadre) that is statistically sound, thirty data points are considered sufficient. Each of the selected CHO was contacted telephonically and was briefed about the study and their verbal consent was taken to participate in the study. A week of the visit was fixed in consultation with the CHO. If any of the selected CHO was not available for data collection due to any reason (transfer, left the job, etc.), the replacement was done by selecting other CHO from the list using simple random sampling.

Relevant socio-demographic data about CHOs was obtained using structured questionnaire during the visit. Each CHO was accompanied during their duty hours of all working days of a week (Monday to Saturday) from their arrival to the working place till their departure. Time spent by CHOs for different activities during the whole day was measured and recorded in a validated tool. Time was recorded from the start of the first activity to the start of the second activity, and the difference between the two recorded times was the time utilized in the first activity. The activities carried out by CHO on daily basis were categorized into OPD, administration work, COVID-19 related work, travel, personal work, Mobile use for personal work, and lunch time. Other activities which were not to be performed by CHO on daily basis were categorized into NCD Screening, home visits, MAMTA day, meetings, trainings and others.

If visit was not possible on any day of the week due to any reason, it was done on the same day of another week convenient to the CHO.

Data were collected in self-designed, structured and validated tool. Before the start of the study, a pilot study was conducted, and a self-designed and structured questionnaire was used. It was validated by the peer review. Data were entered in excel sheet and data analysis was done with the help of Epi Info Software.

Ethical approval was obtained for the study from the ethical committee of Government Medical College, Bhavnagar. All participants were preinformed for study and verbal consent was taken.

Results:

In Bhavnagar district, CHO was posted only in SHC-HWCs. Among the selected CHOs, 53.33% were female and remaining were male CHOs. Almost half of CHOs were serving the population of more than 5000. 10% of CHOs usually need to travel for more than 30 minutes to reach to their HWC from their home.

CHO should be available on duty for 480 minutes per day. As observed from Table 1, CHOs remained on duty for 93% of the time of their expected duty hours. They spent around 30% of their duty hours in either personal or non duty related work.

Table 2 shows that 29.61% (9.74%+19.87%) of the CHOs' on-duty hours were spent for the personal work. More than 14% of their time was utilized in Covid-19 pandemic related work during the period of the study. The duties on which they spent highest amount of their time were OPD and administrative work, which was more than 17% and 14% of their time respectively.

Apart from these activities, there were some other activities in the job profile of CHOs, which were not done on daily basis. Among them, it was observed that CHOs spent 1.64% of their time for NCD Screening, 1.71% for home visits, 1.62% for MAMTA day, 3.67% for meetings, 2.50% for training and 2.06% in other activities.

In actual service delivery, 56.66% of CHOs utilized less than 1800 minutes per week (which is almost 68% of their expected duty hours). In personal work, 43.33% of CHOs spent more than 750 minutes per week. Except 7(23.33%), all of the CHOs spent at least 500 minutes every week (which is

almost 19% of their on duty time) for personal work from their duty hours. 60% of CHOs spent less than 500 minutes per week on OPD work. In COVID-19related work, 56.66% of CHOs spent more than 250 minutes per week. If Covid-19 pandemic would not have been there, this time could have been used for other activities like OPD, NCD screening, MAMTA day work, home visits etc. For lunch, 63.33% of CHOs spent more than 150 minutes per week.

It was observed from this study that 43.75% of the female CHO spent more than 500 min per week in OPD work as against 35.72% of male CHOs. 18.58% of CHOs having Ayurvedic degree and 42.11% of CHO having GNM degree spent more than 500 min per week for OPD work. 46.66% of CHOs staying at headquarters spent more than 500 minutes per week in OPD work as against 33.34% of CHOs who were not staying at headquarters. None of these three differences found statistically significant.

It can be observed from the Table 5 that 50% of female CHOs and 35.72% of male CHOs spent more than 750 minutes per week in personal work, but there was no statistically significant difference found between them in the time spent in personal work. Among CHOs, 42.86% having Ayurvedic degree, 25% of CHOs having Bsc nursing degree and 47.37% of

Duty hours		Total Duration Observed	Average Duration/day	Standard Deviation	Percentage
		(Out of 79200	(Out of 480		
		Minutes *)	Minutes)		
Actual time spent on duty	Total	73675	446	43.47	93.02
	Male	34897	453	46.10	94.37
	Female	38778	441	41.62	91.87
Time spent for providing	Total	51857	314	85.59	70.39**
service (including lunch	Male	25147	326	89.53	72.06**
break)	Female	26710	303	83.37	68.88**
Time spent for personal	Total	21818	132	50.86	29.61**
work	Male	9750	127	48.38	27.94**
	Female	12068	137	54.00	31.12**

Table 1: Time Utilization by CHOs of HWCs of Bhavnagar District (N=30)

*1 week (5 full and 1 half day) = 480 minutes x 5.5 days = 2640 minutes, total 30 weeks = 2640 minutes x 30 CHOs = 79200 minutes

**Out of actual time spent on duty

Time spent [Median(IQR)]	Monday	Tuesday	Wednesday	Thursday	lay Friday Saturday W		Weekly	%
							Average min.	
OPD	62 (115)	75 (118)	55 (91)	60.5 (80)	66 (77)	43.5 (64)	414.5 (484)	17.34
Admin work	50.5 (53)	42.5 (62)	50 (60)	51 (76)	60 (82)	40 (61)	331.5 (204)	14.13
COVID	13.5 (137)	9.5 (111)	38 (115)	59.5 (132)	1 (60)	22.5 (60)	347 (535)	14.36
Travel	4 (30)	17.5 (37)	17.5 (42)	9.5 (25)	0 (33)	0 (10)	100 (69)	4.36
Personal mobile	35 (34)	24.5 (22)	43 (56)	41.5 (43)	49.5 (52)	22 (31)	224.5 (146)	9.74
Personal work	84.5 (71)	73 (85)	75.5 (64)	77.5 (51)	81.5 (74)	47 (70)	524 (390)	19.87
Lunch	30.5 (52)	42.5 (15)	31 (33)	37.5 (27)	34.5 (21)	0 (0)	180.5 (108)	7.02
Duration Spent on Duty (n)	432.5 (56)	457 (60)	436 (62)	452 (41)	439 (49)	239 (70)	2456*	100

Table 2: Day wise utilization of time by a CHO in different activities (N=30)

*Total Observed on Duty Period 73675 minutes / 30 CHOs = 2456 minutes/week

Table 3: Distribution of CHOs according to time spen	it (weekly) in various activities (N=3	30)
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Time Spent For	Weekly Time	Mean	SD	n(%)
	spent (minutes)			
Providing services	<1400	1162.25	182.87	8 (26.66)
	1400 - <1800	1575.11	109.55	9 (30.00)
	1800 - <2200	1966.83	46.09	6 (20.00)
	<u>></u> 2200	2362.85	127.85	7 (23.33)
Personal Work	<500	341.57	35.75	7 (23.33)
	500 - <750	662.10	46.85	10 (33.33)
	750 - <1000	862.71	85.22	7 (23.33)
	<u>></u> 1000	1127.83	68.36	6 (20.00)
OPD	<250	127.10	76.50	10 (33.33)
	250 - <500	378.25	87.57	8 (26.67)
	500 - <750	620.67	71.72	9 (30.00)
	<u>></u> 750	964.67	235.08	3 (10.00)
COVID	<250	81.23	86.33	13 (43.33)
	250 - <500	392.42	70.95	7 (23.33)
	<u>></u> 500	677.70	122.33	10 (33.33)
Administration work	<250	146.12	42.18	8 (26.70)
	250 - <500	367.00	74.47	19 (63.30)
	<u>></u> 500	756.33	192.67	3 (10.00)
Lunch	<150	94.18	50.57	11 (36.66)
	<u>></u> 150	217.63	36.91	19 (63.33)

CHOs having GNM degree spent more than 750 minutes per week in personal work, but the difference observed between them was not found statistically significant. Among CHOs, 26.67% staying at headquarters spent more than 750 minutes per week in personal work as against 60% of CHOs who were not staying at headquarters. However, the difference was not found statistically significant.

Among the CHOs, whose distance from their home to HWC was 15 minutes or less, 29.41% of them spent more than 750 minutes every week for personal work while they were on duty. Among the CHOs whose distance from home was more than 15 minutes, 61.54% of them spent more than 750 minutes in personal work every week. The association of time spent for personal work with the

Variables		Time spent in (n (0PD in a week %)	Chi Square Value	p Value
		<500Min	<u>></u> 500 Min]	
Gender	Female	9 (56.25)	7 (43.75)	0.0056	0.9404
	Male	9 (64.29)	5 (35.71)		
Education	Ayurvedic	5 (71.43)	2 (28.57)	0.0699	0.7915
	Nursing	13 (56.52)	10 (43.48)		
Staying at Headquarters	Yes	8 (53.33)	7 (46.67)	0.1389	0.7093
	No	10 (66.67)	5 (33.33)		

Table 4: Association of time utilized in OPD with selected variables (N=30)

Table 5: Association of time utilized in personal work with selected variable	s (N=30)
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Variables		Time spent in (OPD in a week	Chi Square	p Value
		n (*	%)	Value	
		<750Min	<u>></u> 750 Min		
Gender	Female	8 (50.00)	8 (50.00)	0.1751	0.6755
	Male	9 (64.29)	5 (35.71)		
Education	Ayurvedic	4 (57.14)	3 (42.86)	0.6741	0.7139
	BSc (Nursing)	3 (75.00)	1 (25.00)		
	GNM	10 (52.63)	9 (47.37)		
Staying at headquarters	Yes	11 (73.33)	4 (26.67)	2.1719	0.1405
	No	6 (40.00)	9 (60.00)		
Time required to reach	<15 min	12 (70.59)	5 (29.41)	1.9263	0.1651
at HWC from home	<u>></u> 15min	5 (38.46)	8 (61.54)		

time required to travel to & from their home was not found statistically significant.

As observed from the study, 75% of female CHOs as against 64.29% of male CHOs spent less than 120 minutes per week in administrative work. It was also observed that 68.75% of female CHOs spent >150 minutes every week in lunch break as against 57.14% of male CHOs. None of these two differences were found statistical significant.

Discussion:

In present study it was observed that a CHO remained present for 446 (359-533) minutes daily on duty i.e. about 93% time of their total duty hours. This finding is comparable to study by Sehr Brar, et al.^[6], done in four selected HWCs of a district of Punjab in 2020, which found that CHO spent 5.7 (5.6–5.9) hrs/day on duty i.e. about 95% of the duty hours. A time-motion study by Swetang Ninama, et al.^[7], in Bhavnagar district in 2017 found that MPHWs and FHWs (other cadres of sub-health centres) remained

79.09% and 79.77% of their time on duty out of total duty hours respectively. Thus, CHOs remained on duty for longer hours compared to other cadres of SHCs. This may be because they belong to relatively newer cadre.

However, if the time utilized in productive work is compared, in present study it was found that 63.37% (70.39% - 7.02% time spent for lunch break) of their time spent on duty was utilized in productive work as against 57% of the time in the study by Sehr Brar et al.^[6] The present study was conducted in relatively larger sample as compared to their study, in which only four CHOs and four ANMs had been observed.

It was observed that, the activities that consumed most of the time of CHOs were OPD (17.34%) and Covid related work (14.36%), while Sehr Brar, et al.^[6] in their study observed that services related to NCDs and maternal health consumed most of the time of CHOs, i.e. 40% and 18% respectively. The Covid-19 pandemic related work which included vaccination consumed good amount of time of the CHOs, which otherwise would have been spent in other activities.

It was observed in the present study that CHOs spent 14.13% of their time on administration work, which included online data entry, updating registers and reporting to higher authorities; while Sehr Brar, et al.^[7] found that CHOs spent 29.5% of the time in reporting to higher authorities and 12.1% time in administration. So the time consumed in administrative and reporting work by the CHOs of Bhavnagar was much less than the time consumed by CHOs of Punjab.

Present study shows that CHOs spent 29.61% of their on-duty time for personal (non duty-related) work. A time-motion study conducted by Anand Shah, et al.^[8], in 2013 among MPHWs of a PHC of Ahmedabad district, had similar findings where it was observed that 30.17% time of MPHWs was consumed in non-productive (personal) activities. While Swetang Ninama, et al. observed that MPHWs and FHWs in Bhavnagar spent 14.56% and 2.04% of their on-duty hours respectively for non productive work.^[7]

CHOs in present study spent on an average 34 minutes per day for lunchtime. While Anand Shah, et al.in their study observed that MPHWs on an average spent 56 minutes per day for lunch-break^[8], which was almost 20 minutes higher than that of CHOs in present study.

Conclusion:

CHOs remained present on-duty for 93% time of their total duty hours. CHOs engaged in personal or non-duty-related work for 29.61% of their on-duty hours. Over 750 minutes a week were devoted to personal work by 43.33% of the CHOs during their duty hours. Apart from personal work, most of the on-duty time of CHOs was consumed for OPD (17.34%), followed by Covid-19 related work (14.36%) and administrative work (14.13%). Associations of time spent in personal work by CHOs with their gender, education, staying at headquarters and time to reach HWCs from their residence were not found to be statistically significant.

Limitations:

As the Covid-19 pandemic was ongoing during the study period, significant amount of time of CHOs had to be spent for pandemic related work. If pandemic would not have been there, CHOs could have used this time for other duty related work. In this study, as the CHOs were observed directly by the investigator, the estimated on-duty time of the CHOs might be higher than the actual on-duty time and the estimated time spent on the personal work might be lower than the actual time spent on personal work.

Declaration:

Funding: Nil

Conflicts of interest: Nil

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