

“An Evaluation On The Institutional Perspective Of Primary Health Centres –A Case Study Of Health Centres In Pathanamthitta District Of Kerala

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ABSTRACT

Primary health care through Primary health care system has been recognized as the effective strategy for improved health services across the world. Unfortunately, now this system which is affordable to the people has many deficits in facilities and services. The study evaluates the facilities and services of PHCs from urban, rural and remote rural area which in turn will help analyse the deficits in the facilities and services of PHCs .The study also makes a comparison between urban, rural and remote rural PHCs for identifying the gap in the facilities and services of different PHCs in the Pathanamthitta District. The study is based on primary data. The PHCs in the Pathanamthitta district are widely distributed in the three different geographical areas urban, rural and remote rural. From these three geographical areas, one PHCs were selected from urban areas Chumathra PHC, two from rural areas Othara PHC, Cheneerkara PHC and from remote rural areas Anicadu PHC, Kokkathodu PHC were selected. A comparison between the five different PHCs gives a picture of the existing situation of different PHCs and the lack of resources in the different PHCs. The comparison shows that the PHCs with better PHCindex values have better output index. The comparison brought out that the PHCs in rural areas are performing better than urban and remote rural areas.

Primary health care, Primary Health Centres, Structure , Process , Output

Introduction

The Primary Health Centres are the basic structural and functional unit of the public health services established to provide accessible, affordable and available primary health care to people. Primary Health Centers (PHCs) are the first point of contact between the rural population and the medical officer. They are established to provide accessible, affordable, and quality health care services to the rural population. In rural areas, PHCs are established to provide health care services to a population of 30,000 or more (20,000 in remote areas) . The population norm for public health facilities in urban areas is higher than that in rural areas . Primary health care through Primary health care system has been recognized as the effective strategy for improved health services across the world. Unfortunately, now this system which is affordable to the people has many deficits in facilities

and services. As the system is not equipped to provide all types of services to all the patients suffering from communicable, non-communicable and life style diseases, it causes rise in the health expenditure of the poor in the community as they have to depend on private specialist hospitals which demand high cost leading them to financial crisis. Presently, it is found that the poor cannot afford to have health care services at lower cost. Under this scenario, in order to improve the health care and to bring equity in health services, strengthening of PHCs is imperative in Kerala.

The study evaluates the facilities and services of PHCs from urban, rural and remote rural area which in turn will help analyse the deficits in the facilities and services of PHCs. The study also makes a comparison between urban, rural and remote rural PHCs. This comparison of PHCs in rural, remote rural and urban areas is important because it helps in identifying the gaps in health care services and provides an opportunity to improve the quality of health care services. It also helps in identifying the factors that contribute to the differences in health care services between these areas.

Data Source

The study is based on primary data. The PHCs in the Pathanamthitta district are widely distributed in the three different geographical areas urban, rural and remote rural. From these three geographical areas, one PHCs were selected from urban areas Chumathra PHC, two from rural areas Othara PHC, Cheneerkara PHC and from remote rural areas Anicadu PHC, Kokkathodu PHC were selected. The period of the study was from 2016 march to 2017 August. Questionnaire consisted of questions on the facilities, human resources, financial resources, services rendered and the number of patients.

Theoretical Framework

The study makes use of the Donabedian framework based on the structure, process and output /outcome for assessing the facilities, services and outpatients of PHCs. The Donabedian model is a conceptual and most comprehensive model, which provides framework for examining health services and evaluating the quality of health care. The framework consists of structure, process of care, and outcome which are interdependent and interlinked. In addition, an attempt is made in the study to analyze output also, as outcome of health care is assessed from the output. Therefore relationship of structure, process and output is analyzed in the study.

Structure includes the physical, human and financial resources of the PHCs.

Therefore for assessing the structure aspect of PHCs the variables identified are: Building and location, facilities and equipments, availability of Doctors, availability of health staff financial resources based on the flow of funds from various sources.

Process of the PHC include all services and activities, which the PHCs undertake for the patients such as the number of health awareness classes arranged, number of maternal and child health services provided, dispensation of medicines, presence of doctors, laboratory and referral services. To evaluate the process aspect, the study has examined the number of health awareness classes and camps conducted, number of maternal and child health and immunization services provided, availability of medicines, laboratory services and referral services.

Average number of patients utilizing the services of a PHC per day is used as the output and dependent variable. This is found out by dividing total number of patients visited the respective PHC by number of working days during the year 2016-2017.

After examining the different variables that shape the institutional framework of the PHCs, it is pertinent to analyze the structure, process and output of the sample PHC

An Analysis of PHC's based on Donabedian framework-

Urban Chumathra Primary Health Centre-The centre is located in a municipal area with 8646 households and 34,584 population. The PHC is having a small waiting room and a consultation room. It does not have casualty and laboratory room. The pharmacy has a limited number of medicines. As the office and the counter function in one room, it seems to be very congested. There is lack of proper communication facility also. Facilities of continuous drinking water and a reasonable toilet for patients are lacking. The PHC lacks essential equipments. For example it has only one thermometer and one B.P apparatus; no ECG machine, nebulizers and wheel chair.. From the human resources side, the PHC has a lady doctor. As this is located in a municipality and the area covered by the PHC is large, it is difficult for one health inspector, three Junior Health Inspector ,one Lady Health Inspector and three Junior Public Health Nurse to carry out the preventive services and to visit 17 Schools, and check 124 hotels and bakeries. There is no permanent pharmacist in the PHC. There are 19 ASHA workers who support the health assistants in their field work. There is only one office assistant, staff nurse, hospital attendant and lower division clerk. The PHC provides services of maternal care, immunization, family planning and health awareness classes. As there are 1342 migrants here; screening is conducted twice in a year. Around an average of 70 patients visit the PHC every day.

Rural Othera PHC is located in a rural area covering 6773 households with a population of 28,467. The services of the PHC cover an area of 18.46 sq km. It consists of five Sub Centres. The PHC started its laboratory in 2009 and a palliative care unit in 2012. There is frequent transportation facility to this PHC. It has four consultation rooms with a bed in each room and other facilities for consultation. A wide open waiting room with clean and sufficient chairs are available for the patients to sit and relax. The pharmacy is equipped with all medicines. There are separate rooms meant for casualty, immunization, palliative care and injection or nursing room, well-furnished and kept clean. There is a well-equipped laboratory with modern equipments such as biochemistry analyzer, calorimeter, ECG machine and nebuliser. This is an added facility in this PHC. A separate block with three rooms is allotted for office work including a computer room and a room for keeping the documents. It also has a separate spacious room for the health inspectors for keeping documents of preventive measures. There is another hall for ASHA workers for conducting weekly meetings. A separate wing is also allotted to AYUSH services. Toilet facilities are provided with sufficient water. There is also an effective waste management system, WI-FI system and an ambulance which makes easy evacuation of the patients in times of emergency.. Looking to the human resource side, there are three doctors and the outpatient services extend to 4 O'clock in the evening. There is one health inspector, three Junior Health Inspectors, one Lady Health Inspector and three Junior Public Health Nurse for carrying out field activities to visit 17 schools and 52 hotel/bakeries. 24 ASHA support the health assistant in the fieldwork. An experienced pharmacist is an advantage of the PHC. The panchayat extends good financial

support to this PHC. In the process side, the laboratory renders special service as most of the tests prescribed by doctors are done there at a nominal rate. The PHC is kept open for maternal and immunization clinics once in every week. The doctors are always made available here. There is a good referral community health centre within five kilometres. The PHC serves an average of 205 patients per day.

Rural Cheneerkara PHC located in a rural area consists of 5271 households with a 19124 population and its services cover an area of 18.75 sq.kms. This PHC has five Sub Centres, a palliative care unit started in 2012, a mental care clinic started in 2013 and a laboratory started in November 2014. Frequent transportation facilities are there to reach this PHC. This PHC is well organized and kept clean. There is a spacious consultation room, casualty room, laboratory, a well-organized office room, a pharmacy and a canteen for refreshment. This PHC is one among the three PHCs in the district where medicines are kept in an air conditioned pharmacy. There is also waste management mechanism, better toilet facility and drinking water system. The PHC has adequate number of BP apparatus, thermometer, wheel chairs and fogging machines. There are two doctors and an outpatient clinics which remains open till 1 O'clock in the afternoon. There is one health inspector, three Junior Health Inspectors, one Lady Health Inspector and five Junior Public Health Nurses carrying out all field activities and visiting of 19 Schools and 15 hotel/bakeries. 19 ASHA workers support the health assistant in the field work. There are two hospital attendants in this PHC. Panchayat support this PHC by providing financial assistance. It serves an average of 183 patients per day.

Remote Rural Anicadu PHC is located in a hilly area where there are 3726 households with 14,585 of population. The PHC has four Sub Centres and an acre of land which is not utilized effectively. A mental care clinic was started in 2011 and a palliative care unit in 2012. The Anicadu PHC is situated in an area where transportation facility is difficult. This PHC has a small consultation room. There is neither casualty room nor a laboratory. There is no separate waiting room; and patients have to wait in the varandha. It lacks toilet and drinking water facility. The whole building is in a dilapidated condition with broken flooring and even without a compound wall. There is no effective waste management system. The PHC has not even the rudimentary items like wheel chairs, measuring stand, office rack, and fogging machine. There is only one doctor, and the outpatient clinics work until 1 O'clock in the afternoon. There is no Lady Health Inspector but a health inspector, three Junior Health Inspectors, and four Junior Public Health Nurses to carry out the field activities and to visit of 13 schools and 26 hotel/bakeries. The health assistants are supported by 15 ASHA workers in the field work. There is no staff nurse and part time sweeper. Support from panchayat is very poor. The PHC is conducting health awareness classes, camps and palliative care services along with maternal and child health and family planning services with its limited facilities. The PHC has average of 88 patients per day.

Remote Rural Kokkathodu PHC is located in a very remote forest area in the midst of tribal colonies. The total population covered by PHC is 17,536 in 3872 households. The services of PHC cover an area of 12 sq.km. The centre has six Sub Centres. It has started a palliative care unit in 2012. This PHC faces the problem of transportation. There is a small consultation room where patients have to stand in queue and a small pharmacy with an office. There are no adequate chairs and benches for the patients to sit on. There is no toilet facility for the patients, no laboratory, no casualty room and no drinking water facility. The area occupied by this PHC is 24

cents. There is no effective waste management system. The PHC does not even have the elementary facilities like bed side screen, wheel chairs, measuring stand and sprayer. It has one fogging machine, examination table and a weighing machine. There is only one doctor available and the outpatient clinic is kept open till 12.30 P.M in the afternoon. There is no health inspector but four Junior Health Inspectors, one Lady Health Inspector and six Junior Public Health Nurses for carrying out all the field activities and to visit of six schools and 49 hotel/bakeries. There is no staff nurse. Support of the panchayat is very poor. The financial resources are not sufficient to carry out the activities especially in times of communicable diseases which may spread quickly in the tribal areas. Around 32 patients visit this PHC a day.

After a brief description of the sample PHCs in Pathanamthitta, the study gives below an assessment and comparison of the PHC with the help of an Index. This is done to illustrate the present institutional situation of the different types of PHC in the district and to understand whether the presence and absence of the said structure and process variables influence the output of the PHCs

Comparison of Primary Health Centres

In order to classify the PHCs based on the structure, process and output, an index is calculated by $I_j = \sum_k \frac{X_{jk}}{X_{ji}}$, where X_{jk} is the value of the j^{th} variable for the k^{th} PHC ; $j=1,2,3,\dots,13$; $k=1,2,3,4$; i is the PHC having maximum value, $X_{ji} = \max_k (X_{jk})$. For each variable, the index varies from 0 to 1 that can be used to compare variables among the PHCs. For the comparison of the PHCs, the mean score of the components is considered. The PHC with maximum scores secured is better in general.

Table 1.

Index of Five Primary Health Centres based on Structure, Process and Output variables

Sl. No.	Variables	Urban Chumathra	Rural Othara	Rural Chenneerkara	Remote Rural Anicadu	Remote Rural Kokkathodu
Structure						
1	Building and location	0.29	1	1	0.29	0.14
2	Facilities	0.39	1	0.79	0.32	0.29
3	Equipments	0.58	1	0.92	0.54	0.54
4	Availability of doctors	0.5	1	1	0.5	0.5
5	Availability of Health staffs	0.79	1	0.79	0.54	0.25
6	Finance	0.32	1	0.83	0.34	0.41
	Total	0.48	1	0.89	0.42	0.36
Process						
7	Number of health awareness classes	0.38	0.89	1	0.77	0.12
8	Number of maternal care, child health and immunization	0.53	1	0.97	0.65	0.47

	services					
9	Availability of medicines	0.13	0.94	1	0.37	0.35
10	Presence of doctors	1	1	1	0.91	0.84
11	Laboratory services	0	1	0.72	0	0
12	Proper referral services	0	1	1	0	0
	Total	0.34	0.97	0.95	0.45	0.30
Output						
	Average patients per day	0.34	1	0.89	0.39	0.13
	Total	0.4	0.99	0.92	0.43	0.31

Source: Primary Data (Sample Survey, 2016-17)

The table 1 shows that, rural Othara has better structure variables. It is having a good infrastructure with a number of rooms for each service. Each room has its own privacy. The PHC has sufficient human resources and it is financially supported by the panchayat. It has an attraction of its own and to the community. It is followed by rural Chenneerkara which also has a good infrastructure and facilities. Its location is in an area where households can reach easily; and it has more than one doctor. Besides, a garden and a canteen provide additional advantage to the structure of the Centre.

The urban Chumathra has a structure index value of 0.48. The index shows that, there is a great leap to achieve the structure index value of the best performing PHC in building location (0.29), facilities (0.39) and finance (0.32). In the matter of building and location, this PHC is disadvantaged due to the nearness of specialist clinics and hospitals. There is only one lady doctor and even general post is found vacant. Its consultation room has no privacy.

The structure index value of remote rural Anicadu is 0.42. It has very poor value for all other variables also. The building and location, facilities and finance need a jump to reach the target of better performing PHCs. The presence of only one doctor is a great handicap the PHC faces. The queue of patients is long when the single doctor comes after a leave and the doctor finds it difficult to provide proper attention to the patients. As the PHC is located in an area where transportation is not easy, even the doctors find difficult to reach the PHC in time, which in-turn has adverse impact on the output. The structure index value of remote rural Kokkathodu is poor. A vital point to be noted is that, the PHC situated in tribal, forest and hilly area does have even the basic facilities. This PHC suffers from deficiency of human resources. The work load of the existing staff is too heavy to manage. As a result, this PHC renders very poor services in a place where they are needed more. In the matter of structure, the urban Chumathra, remote rural Anicadu and Kokkathodu face serious deficiency to attain the index of better performing Primary Health Centres.

Rural Othara and rural Chenneerkara have better process variables compared to other PHCs. This is because of the fact that, these PHCs have full-fledged laboratory facility where all the prescribed tests are conducted, effective referral system within five kilometre, periodical health awareness classes, camps and regular maternal child health clinics. These PHCs have also a furnished pharmacy, which can stock almost all the medicines for the patients prescribed by the doctors. Yet another advantage is the presence of doctors almost all the days.

The index value of the process variable of urban Chumathra is poor with 0.34. As this PHC is situated in an area where there are many hospitals and clinics nearby, less number of health awareness camps and classes are arranged in which participation is also poor. Poor stock of medicines in the pharmacy and lack of laboratory facilities are serious deficiencies the urban PHC face. In the present situation, where majority of people suffer from BP, diabetics and high cholesterol, the absence of a laboratory in this urban PHC drives the patients to private clinics.

When compared with the urban Chumathra, remote rural Anicadu PHC has better index value for process variable with 0.45 but still it has a long way to reach the index of better performing PHC. Health awareness classes and maternal-child health clinics are conducted regularly than the urban PHC. This is because of the fact that the households in urban centre have many other options for health care whereas the households in rural areas have less option for other alternatives. Therefore they participate in the health care programmes and clinics conducted by this PHC. However, the PHC often faces problems such as scarcity of medicines and the absence of doctors for medical care. The remote rural Kokkathodu with 0.30 depicts the least process index value. This PHC has to improve a lot in the process variables. Due to lack of laboratory and referral system, the patients coming to the PHC had to travel more than 12 km to reach other clinics whenever an emergency arises and for lab services.

In the matter of output, rural Othara PHC with the best structure index value and process index value has the best output index also. More patients are utilizing the services of this PHC and it ranks first. It is followed by rural Chenneerkara. The urban Chumathra has a better structure than remote rural Anicadu but its process variables are poorer than those of remote rural Anicadu and it ranks fourth in the output index value. Remote rural Anicadu stands in the third position. The remote rural Kokkathodu has the poorest structure and process index value. Therefore, this PHC has the poorest output value.

From the comparison of the sample PHCs, the study arrives at the following conclusions:

The PHC in the rural area has a better structure, process and output than PHC in urban and remote rural areas. The PHCs of rural area ranked first and second as they perform well compared to others. There exists inequality in the structure, process and output of the PHCs in the different areas.

Rural PHC are utilizing their resources better than urban PHC. In the matter of number of health awareness classes, number of participation in the health awareness classes, maternal and child health clinics, rural PHCs perform better than remote rural PHCs and urban PHCs.

It can be inferred from the analysis, that the presence and absence of each structure and process variable have an influence on output.

After analyzing the structure, process and output of the PHCs, it is relevant at this juncture to examine statistically whether output of the PHC is influenced by structure and process.

Statistical Analysis of the influence of Structure and Process on Output of the PHC

With the help of primary data collected from the sample PHCs, regression analysis was done to analyze and to test statistically the effect of structure and process variables on output. Structure and process variables are the independent variables and the average patients per day is taken as the dependent variable which is the output.

The R square value, regression coefficients, F-value and P-value are computed as given in table 2



Table 2

Simple Regression Analysis on Structure, Process and Output Variables

Sl. No.	Variables	R square	Coefficients		F-value	P-value
			B ₀	B ₁		
Structure						
1	Building and location	0.967	-20.862	24.931	88.282	.003*
2	Facilities	0.929	-10.656	8.093	39.251	.008*
3	Equipments	0.929	-115.791	13.453	39.24	.008*
4	Availability of doctors	0.916	-67.33	130.667	32.753	.011**
5	Availability of health staff	0.677	-28.689	8.907	6.281	.087#
6	Financial resource	0.860	-12.148	10.492	18.45	.023**
Process						
7	Number of health awareness classes	0.834	17.711	2.044	15.038	.030**
8	Maternal care, child health and immunizationservices	0.986	-101.858	3.499	213.615	.001*
9	Availability of medicines	0.790	2.403	2.092	11.282	.044**
10	Laboratory services	0.918	64.372	1.653	33.679	.010**
11	Proper referral services	0.916	63.333	130.667	32.750	.011**

Source: Primary Data (Sample Survey, 2016-17)

* Significant at 1% level of significance; ** Significant at 5% level of significance

Significant at 10% level of significance.

The table 2 proves that, among the structure variables, building availability and location has the greatest explanatory power on the output (R square = 0.967). The regression coefficient is 24.931 and the model is significant at 1% level of significance (F=88.282, p-value<.01). Among the process variable, maternal care, child health and immunization services have the greatest explanatory power on the output of PHC (R square = 0.986). The regression coefficient is 3.499 and the model is significant at 1% level of significance (F=213.615, p-value<.01). The P value, F value and the R square value of the regression analysis shows all the independent structures and process variables are positively and significantly related to the output.

Hence output is explained by structure and process significantly.

The analysis shows that among the structure variables, patients are more influenced by those PHCs which are accessible, far away from other nearby hospitals and have better transportation facilities. If PHCs are accessible and have better infrastructural facilities and equipments, more people will approach them. From the process part, if PHCs are well-equipped to provide services for maternal and child health, non-communicable diseases and life style diseases effectively, then the output of the PHC will improve. More patients will avail the services of PHCs..

From the above analysis, the study identify the major problems the Primary Health Centres face from institutional perspective:

- The PHCs in remote rural areas where alternative health care is not available remain neglected without the basic facilities, effective referral system and laboratory system which are necessary for the sustainability of Primary Health Centres.
- Shortage of doctors causes a long queue of patients.
- Accessibility is a problem faced by the PHCs particularly in hilly and forest areas. The PHCs are located in an area where it is difficult for the people to access health services.
- Lack of finance hinder preventive and promotive services effectively.

Conclusion

The chapter analyses the facilities and services of Primary Health Centres from institutional perspective. The five sample PHCs were studied on the basis of Donabedian Framework of Structure-Process-Output. A comparison between the five different PHCs gives a picture of the existing situation of different PHCs and the lack of resources in the different PHCs. The comparison shows that the PHCs with better structure and process index values have better output index. The comparison brought out that the PHCs in rural areas are performing better than urban and remote rural areas. It was found that the PHCs situated in remote rural area predominantly tribal and forest area, lacks adequate structure and even the basic facilities of drinking water and toilet. This affects their process and the output. The urban PHC face competition with the nearby private hospitals and clinics. The PHC in rural areas has better structure and process and they perform well compared to remote rural and urban PHC. When there are better facilities and services in PHCs, patients have a tendency to approach PHC leaving the other private clinics which are not affordable to them. This will not only improve the capability of the community but also reduce their health care expenditure which is a main cause for poverty.

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