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The Cost Analysis of the Private and Public Health Facilities for Delivering Outpatient Services: A Study Conducted in Bangladesh

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Abstract: The government of Bangladesh tries to provide free healthcare services locally through community clinics, satellite clinics, Union Health & Family Welfare Center (UH&FWC), etc. But all these facilities still unable to fulfill the local demand. So, people visit private medical institutions to receive proper treatment. They need to pay for each unit of private healthcare services. The study considered eight UH&FWC in rural areas and eight private clinics in urban areas from 8 districts of Bangladesh. We accumulated the various categories of cost-related data of these facilities e.g. physicians and other staff's salary, hospital rent and other equipment costs, etc. and also the number of patients treated by each facility each month. Thus, we estimated the per month cost of producing each unit of outpatient services. The cost of producing per unit outpatient services differed from facilities to facilities. The cost in the UH&FWC ranged from BDT 178 ($2.09) to BDT 197 ($2.32). At the same time, this cost in the private clinic was BDT 87 ($1.02) to BDT 92 ($1.08). The health care cost between public and private health facilities altered due to the variation in cost and utilization of services from these health facilities. However, private health facilities are more efficient than public health facilities. If we would like to reduce the cost of public health facilities, we must ensure transparency in the facilities.

Keywords: Healthcare, Union Health & Family Welfare Center, Public Health Facilities, Private Clinic.

1. Introduction

Every citizen of a country is supposed to have easy access to basic health facilities. This is due to maintaining the quality of life of the citizens. Quality health helps gain social and economic development. Along with social and economic development, quality health is required for sustainable development, that's why the health sector is a priority. Governments of various countries develop policies and work to integrate facilities of the health system to achieve development and facilitate poverty reduction plan [1]. Weakness in developing policy and proper implementation may lead to controversy and leave long-term impact as well as instability in the society, such as the issue in the US. It was a hot topic during the 2016 US presidential election that how the issue of the healthcare system influenced the atmosphere of the election [2]. This is an issue of controversy to this day as the healthcare system in the US is regarded as a profit-motivated system. In 2015, US spent $10,000 per person in an average [3]. The expanse is a lot higher when we compare it with that of the developing nations.

In Russia, the per capita health expenditure was more than 1.5 thousand US dollars in 2018. This amount is significantly lower than any other developed nation. The healthcare facilities are in the trend of declining [4]. There

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was also a question against the free treatment in Russian hospitals [5]. Other European countries have different scenarios. The official report shows that the UK spent £197.4 billion on healthcare facilities in 2017. Meanwhile, the per capita expense was £2989 [6]. There is a clear contrast in the healthcare system in Italy. World Health Organization (WHO) ranked Italy as one of the top 10 countries for quality healthcare facilities. Public and private healthcare services are both good and affordable for citizens. They have healthcare insurance like many other countries. The per capita healthcare expenditure in Italy was 2565euros in 2019 [7]. This contrast shows how proper policy making and implementation, as well as the development and integration of public and private sectors, can enhance healthcare services.

Per capita, health expenditure was 4,237 yuan in China in 2018, which was 1,094.52 yuan in 2008 [8]. Recent research shows that healthcare facilities in China have been facing lots of challenges, including lower primary healthcare quality, inadequate educational and training opportunities for practitioners, incorporating public health services and clinical care and so on [9]. The Indian government also has low expenditure on health. The per capita government healthcare expenditure is Rs 1,657 [10]. Studies in recent years show that health insurance is not affordable for the people below the poverty line. Scenarios also observed inconsistency among various institutions of health sectors [11]. In 2017, per capita, healthcare expenditure was 45 US dollars in Pakistan, which was 15 US dollars in 2003 [12]. The healthcare system is in the process of development. There were also many barriers, such as inadequacy in approaching health insurance and lack of proper knowledge of the services [13].

In Bangladesh, healthcare at the policy level starts with the constitution. The constitution of Bangladesh authorizes all of its citizens to basic healthcare freely [14]. There has been a lot of progress in the health sector in Bangladesh. Studies in recent years show that there is a significant improvement in people's health in Bangladesh. Vaccination rates, arsenic prevention and birth control rate have been elevated, while reduction is found in cholera prevalence, child and infant mortality rates [15].

But the NHA (National Health Account) found that the out-of-pocket payments were higher compared to the government expenditure. In 2015, the out-of-pocket payments were 67% of the total health expenditure while the government expenditure was only 23% [16]. The public health facilities provide services free of charge or only for user fees. On the other hand, the private sectors (NGOs, private clinics, non-govt. hospitals) also provide health care on a payment basis [17]. But both the private and private facilities require resources to produce healthcare services. The govt. bears the cost of producing healthcare in public health facilities but private health facilities' cost is carried on by their own. Patients who take healthcare from the private clinic has higher average direct costs than public health facilities. However, the average indirect costs of private health care are higher compared to private health facilities' patients [15]. The study ascertains the cost variation between public and private health facilities for delivering outpatient services in a selected area in Bangladesh.

In developing countries, the hospitals spent 50 to 80 percent share of the public sector health funds [18]. In 2001, the average expense of health care enhanced around 14.7% from the previous year in the USA [19]. To provide inpatient services, the cost of a single bed per day differed in India [20]. In Vietnam, the unit cost of the same healthcare services was fairly different between two methods like the micro-costing method and the RCC method [21].

A study emphasized the cash management differences between two different types of hospitals [22] and others focused on the revenue loss by the nonprofit hospitals to perform charitable activities [23, 24]. While another study concentrated on the differences between two types of hospitals to provide healthcare privately [25].

In Denmark, the patient-specific automated medication system (psAMS) was the most cost-effective method than a non-patient-specific automated medication system (npsAMS), and complex automated medication system (cAMS) [26]. Improving psychiatric symptoms, day treatment programs were superior to out-patient care though there was no proof that whether the day treatment programs were superior or inferior to out-patient care on a cost basis [27]. A hospital-based home care scheme was further cost-effective compared to traditional community care for schizophrenia in Taiwan [28]. While in-patient care was less cost-effective compared to the hospital at home (HaH) [29].

2. Research Objectives

To analyze the average cost of government hospitals and private hospitals for a unit of outpatient service.

3. Methodology

3.1 Study Setting and Participants

This study was conducted in November 2019 in 8 districts of Bangladesh. The districts have been chosen from 8 divisions of Bangladesh following the convenience sampling technique. These are from Gazipur, Mymensingh, Rangpur, Rajshahi, Khulna, Barisal, Hobiganj, and Feni. This study ran by applying quantitative (secondary) data collection methods. Each of these areas is overpopulated and there are a lot of medical colleges & hospitals, district hospitals, Upazilla Health Complexes, Union Health & Family Welfare Centers (UH&FWC) and community clinics

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were also noticed in these districts. Besides these government institutions, many private institutions also deliver health services.
The study was conducted on 8 government health facilities and 8 private health facilities in those aforementioned districts. In the government health facilities where government employees provide health services and in private health facilities where privately employed employees provide services. For collecting information, the in-depth interview (IDI) and FGD were also held.

3.2 Study Sample

The study selected 16 health facilities from 8 districts using a convenience sampling technique. 8 were the public facilities that are situated in rural areas. Besides, 8 private facilities were chosen from urban areas of those districts. The public health facility, Union Health and Family Welfare Centre (UH&FWC), mainly primary health care services and normal delivery of health care services are provided.

Table 1: Government Hospitals (Rural Areas)

Category of cost/ Month	August	September	October
Human Resources (HR)	174500 (78.94%)	174500 (78.10%)	174500 (78.56%)
Medicine cost	23000 (10.40%)	25500 (11.41%)	24000 (10.81%)
Electricity Bill	750 (0.34%)	620 (0.28%)	800 (0.36%)
Building cost (using Annuitization)	22818 (10.32%)	22818 (10.21%)	22818 (10.27%)
Total cost (per UH&FWC)	221068 (100.00%)	223438 (100.00%)	222118 (100.00%)
Total Patient served (per UH&FWC)	1120	1250	1180
Average Cost per patient	197.38	178.75	188

3.3 Data Collection

Quantitative data on several types of cost and the number of patients served in both private and public health facilities were collected. We contacted the administrative officer for getting the relevant data. We discussed various categories of costs of the clinic with them. We also communicated with each physician's personal assistant about the number of patients who were served per month. We got a scenario about the number of patients served.

3.4 Data Measures and Statistical Analysis

Data were collected from regional health facilities that were situated outside the Dhaka city corporation. We mainly collected quantitative data on each facility's outpatient service delivery associated with hospital costs. Each health facility has both fixed and variable costs which are related to separate categories. The maintenance cost, building cost, equipment cost, etc. are the fixed cost. At the same time, the water bill, electricity bill, etc. are the variable cost. The separate authorities managed their facilities through fixed budgets. The government bears all the maintenance costs of the public facilities. Alternatively, private authorities also bear all the costs to manage the facility. At first, we calculated the total cost of separate facilities every month. For simplicity, we took only three months of data. Then coordinated it with the number of patients served each month. At last, we calculated the average cost of health facilities for producing per unit outpatient services. That means, this study followed the descriptive analysis procedure.

4. Results

This study focused on the hospital's management related cost. Every health facilities aim to serve people at lower costs. Government health facilities aim to serve people without making any profit however the private health facilities focus on profit. The Government provides all basic primary care especially, to meet in care of diarrhea, fever, cough, migraine, normal delivery, etc. Skill mix is also used here to provide different sorts of outpatient services.
The idle structure of a UH&FWC has one Medical Officer, one Sub Assistant Community Medical Officer (SACMO), one Family Welfare Visitor (FWV), one Family Planning Inspector (FPI), one Family Welfare Assistant (FWA), one pion (Male staff), one aya (female staff), and one-night guard. The result showed that no UH&FWC had a medical officer and night guard. Only six staff visited each of the facilities. One of them, SACMO who got a salary of BDT 64,000 per month remained present five days a week with providing outpatient services for males, females, and children.

The FWV provided family planning services to the women in a government facility. She also provided normal services to all. She got a salary of BDT 47,500 per month and also was present five days a week. Both SACMO and FWV had no quarters in the UH&FWC. Besides SACMO and FWV, there was one FPI, one FWA, one pion, and one aya also served here. So, the total money spent by eight UH&FWC on human resources was BDT 13,96,000 per month. The electricity bill of the eight UH&FWC was BDT 6000 in August, BDT 4960 in September, and BDT 6400 in

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September. So, the average electricity bill was BDT 750 in August, BDT 620 in September, and BDT 800 in October per UH&FWC.

The government facilities provided outdoor services as well as basic medicine to the patients. As the Government provided medicine, the patients didn't need to pay for this. Although we didn't know the exact price of that medicine, the staff provided the approximate estimation based on the types of medicine used per day. The total medicine cost was BDT 184,000 in August, BDT 204000 in September, and BDT 192,000 in October. From this information, we calculated the average medicine cost per month was BDT 23,000 in August and BDT 25,500 in September, and BDT 24,000 in October.

At last, we focused on the building which was used to provide services. Almost all UH&FWCs in eight districts had the same types of building. We estimated the average cost per building was BDT 5000000. Suppose the building would be used more or less 50 years considering a 5% depreciation rate. Thus, we calculated the annuitization which was as follows-

$$K = \frac{E}{1+r} + \frac{E}{(1+r)2} + \cdots \ldots \ldots \ldots \ldots + \frac{E}{(1+r)n}$$

$$K = E[\frac{\left\{1 - \frac{1}{(1+r)n}\right\}}{r}]$$

$$E = K[\frac{\left\{1 - \frac{1}{(1+r)n}\right\}}{r}]$$

=273822

So, the annual cost per building was BDT 273,822 per year. Thus, per month cost was BDT 22,818.

Patients visited and received health care services and medicine every day. By collecting information from the eight UH&FWC, 8,960 patients were served in August, 10,000 patients in September and 9,440 patients in October. So, the average number of patients was served per month was 1,120 in August 1250, in September and 1180 in October for each of the UH&FWC.

The average cost per patient per unit of outpatient services was BDT 197.38 in August, BDT 178.75 in September and BDT 188 in October. So, the per month hospital average cost was varied between BDT 178 to BDT 197 (see Table 1).

In the case of private clinics, the buildings weren't owned by the private providers. As a result, the authorities paid rent to its owner which was BDT 45,000 per month (average for each clinic). The average electricity bill was BDT 43,000 in August, BDT 46,000 in September, and BDT 45,000 in October. The average water bill was BDT 2000 per month per clinic.

Private providers spent on human resources. They employed qualified doctors, nurses to provide outpatient services. Each doctor provided outpatient services where some served more patients and others served less. The total money spent by eight clinics on human resources was BDT 50,88,000 per month. So, the average cost on human resources of a clinic was BDT 6,36,000 per month.

The authorities also spent on promotional activities. The average promotional cost of eight UH&FWC was BDT 12,000 in August, BDT 11,000 in September, and BDT 12,500 in October. The average cost of furniture was BDT 20,064 (by using annuitization) for a clinic per month. The average maintenance cost per month was BDT 1,08,333. From the above information, we calculated the total money spend per clinic was BDT 866,397 in August, BDT 868,397 in September, and BDT 868,897 in October. The average number of patients served per month per clinic was 9903 in August, 9,654 in September, 9,437 in October (See Table 2). From table 2, we noticed the average cost per patient to provide per unit outpatient services was BDT 87.49 in August, BDT 89.95 in September and BDT 92.07 in October. So, the per month average patient cost was varied between BDT 87 to BDT 92.

5. Discussion

Bangladesh is a developing country where most people live in the village. When people become sick, they take health care from the village quack. Some prefer private health facilities while others prefer public health facilities. The cost of producing per unit of outpatient services differs from facilities to facilities. The MOHFW emphasizes the expansion of public facilities though the cost of producing healthcare differs from private health facilities.

The Government of Bangladesh is constitutionally committed to offering rudimentary health services to its inhabitants [14]. So, it established separate types of health facilities at different levels: ward level, union level, Upazila level, and district level. The study mainly focused on the UH&FWC and private clinics. The UH&FWC were situated in rural areas whereas the private clinics were situated in urban areas. Many countries spent 50% to 80% in public hospitals [17, 18]. In Bangladesh, most of the cost of public health facilities were afforded by the government, but the quality of services was not satisfactory.

The intention of establishing UH&FWC is to provide basic health services to those who are not able to bear the cost of health care services. So, the government of Bangladesh inaugurates these types of facilities to provide the services of those people. In Taiwan, hospital-based home care was more effective and less costly compared to inpatient care [29] whereas, in the study, the private clinics were more cost-effective compared to the public health facilities. In India and Vietnam, the cost of healthcare was also varied in different levels of systems or categories [20, 21]. The cost of public health facilities increased day by day as time passed away. If the people were able to absorb services from the private health facilities, they were not willing to receive healthcare from public facilities. So, the cost-effectiveness of a program

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or sector depends not only on the utilization but also on the quality of healthcare services [23, 25, 26, 24].

The cost of producing outpatient services was more in UH&FWC compared to the private clinics. The cost difference between the two facilities varied within BDT 100. The study remarked the range of producing one-unit outpatient services was BDT 87 to BDT 92 in private clinics whereas, it was BDT 178 to BDT 197 in UH&FWCs. The utilization of public healthcare services was lower compared to the private clinics. Though the public facilities provide services freely, people spent 67% of the total health expenditure [16]. The private health facilities are more efficient compared to the public health facilities [27, 28] although it focused on the profit. So, the government should take proper steps to increase the quality of services and to ensure transparency and provide proper care in the public health facilities. Again, the private practices of physicians should also be stopped during office hours. If the government ensures the presence of physicians in hospitals, health care utilization in the public health facilities may increase day by day.

6. Conclusion

In Bangladesh, both public and private health facilities provide health services to the people of Bangladesh. The

Table 2: Private Clinic (Urban)

Category of Cost	August	September	October
Human Resources (HR)	636000 (73.41%)	636000 (73.24%)	636000 (73.20%)
Building Rent	45000 (5.19%)	45000 (5.18%)	45000 (5.18%)
Electricity Bill	43000 (4.96%)	46000 (5.30%)	45000 (5.18%)
Water Bill	2000 (0.23%)	2000 (0.23%)	2000 (0.23%)
Advertisement	12000 (1.39%)	11000 (1.27%)	12500 (1.44%)
Maintenance Cost (13 Lakh Per Year)	108333 (12.50%)	108333 (12.48%)	108333 (12.47%)
Furniture Cost (Using Annuitization)	20064 (2.32%)	20064 (2.31%)	20064 (2.31%)
Total Cost (per clinic)	866397 (100.00%)	868397 (100.00%)	868897 (100.00%)
Total Patient Served per month (per clinic)	9903	9654	9437
Average Cost per patient	87.49	89.95	92.07

Study showed that private health facilities are more efficient. But poor people cannot afford the cost of receiving health services from private health facilities and thus suffer more. In UH&FWCs, though the services are provided free, the utilization of health services is lower due to the absence of health personals. As a result, the cost of producing health care services is higher in public health facilities. Although the government spends more money, it does not ensure efficiency. So, the government should focus on the different categories of cost of a health facility. The government policy should focus on the availability of physicians, staff, and machinery rather than construction to ensure the quality of health care. In the private health facilities, health care services are produced at a lower cost. They collect more fees from the patients by employing qualified doctors in their facilities. So, the government should ensure efficiency along with equity in public health facilities because of limited resources. If we used the resources in one task, other activities were hampered. So, we should decide on the appropriate use of resources.

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