

Public Health Services in Mandalay City

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Abstract

In city development, public service is an important role and also plays in the development of economic activities. The functions of public service can support a lot of help to the public who live in the city in pursuing a smart city. The main aim of this study is to emphasize the distribution of health care centers. As primary data, 1375 households are selected for the sample group. The city's population data is based on the 2014 census for secondary data. In the spatial analysis, the location quotient method is also used for health service sufficient or not (Rahaman K. R. and Salauddin Md., 2009). Moreover, qualitative and quantitative data were collected and processed. According to the results of the responses, the requirements or needs of the health care service facilities are found in the micro-level or individual level not only for the physical health in some way but also for the mental one. Besides, in emergency cases, the public relies on private voluntary associations. That is why there is insufficient in health care services and a need to fulfill some facilities to get an improvement in the health sector and to relocate more specific health care centers.

Keywords: health care centers, population, facilities, distribution, and insufficient

Introduction

In building not only the urban or civilization but also in the territory of human society, public service is very important. This is one of the reasons for studying the "Public Service" as the research theme. The population of Mandalay City is growing because of its urbanization. Therefore, public service is basic essential to develop and to facilitate the development of infrastructure of the city. Among the public services, the health sector is one of the fundamental sectors in pursuing a smart city. Besides, healthy life stands for the first place not only for every person but also for the public who lived within that city. In this paper, the public health services which run by non-profit purposes are only considered to study the health care services (Government Public Service).

The meaning of public service is the thing that done to help or supply rather than to get a benefit. In further definition, someone has done this work by public servants as a part of the government. In the health care services, it means; a public health service providing medical care and this service sector supports the people not only for their physical but also mental health condition. Besides, some kind of long term work is also a service activity. By doing so, the public can survive according to their life expectancy and perform economic activities. In this paper, the study area was considered the space of all residential and urban areas in Mandalay City (MCDC, Mandalay City Development Committee).

Health service was considered and analyzed into two parts. For the first part, the ward administrative offices were visited to investigate the amenities of the public upon the health service and the sample data is 76 wards offices out of 96 and interviewed to the wards administrators. Therefore, the public health service is studied for research to know how the government supplies the health service throughout the city. The such data as when did the public often went to the regional clinics or hospitals (government) or private hospitals, how does the public decided to choose these health care center for their health which health care

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center they have chosen whether it is minor health case, how they delivered health care service to per person or the public, whether health care centers can rely on or not, otherwise, whether they are reliable or not for the public, the need for the public concerning their health, etc. were collected through interview method to investigate how the public remind about these health care centers and each ward is interviewed to evaluate its ability of service. As the second part is related to the health care center's functions, the data of what kind of medical care method is used when they get flu, whether they go to these health care centers when they get serious health problems and which health care centers they often use, these centers can easily be accessible, etc. are collected to evaluate its ability of service. For the needed health care service, the questionnaire was prepared to figure out under the assessment and the amenities of the public. The sample data is 1375 households for questionnaires.

Aim and Objectives

The main aim of this study is to emphasize distribution of the health care service centers. The objectives are:

- To analysis the distribution and disparity of the health care centers
- To study the sufficiency of the health care service
- To figure out the weaknesses and strengths of the health care service

Hypothesis

The existing functions of public health services are not sufficient to fulfill the basic needs of the city people.

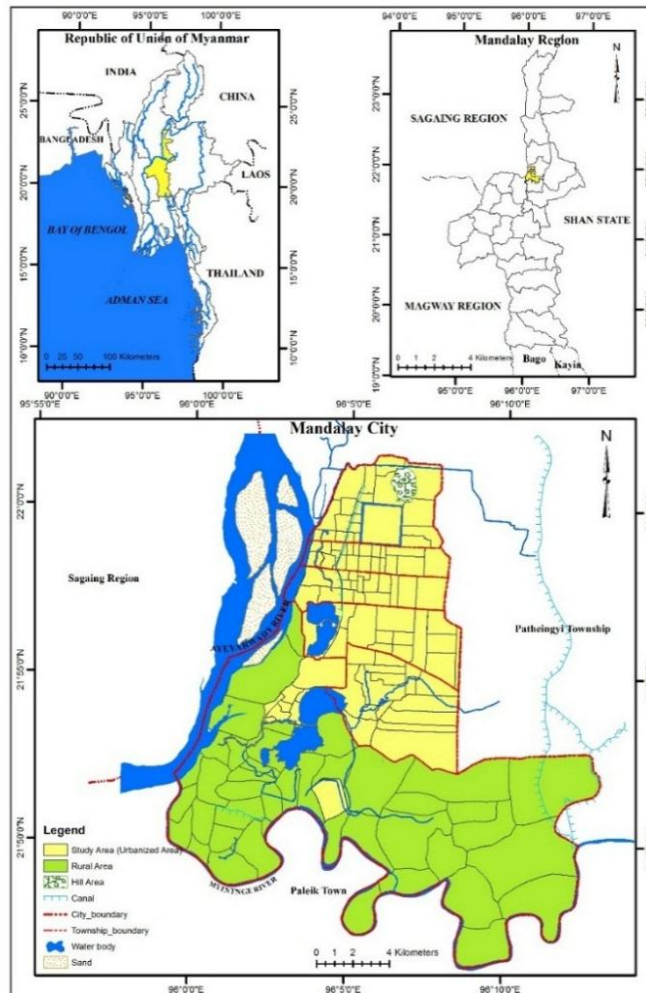
Data and Methods

For the secondary data, the population characters are also basic and also important in considering the functions of the service to describe and to analyze the public health service. That is why distribution and density of the population are presented as the background bases and the population data of the 2014 census which printed from the Department of Population, Ministry of Labour, Immigration, and Population Department. The surplus or deficit conditions of health care centers were analyzed with the Location Quotient method, Lorenz Curve, etc. Several qualitative and quantitative methods such as interviewing, distributing the questionnaire for the primary data. The data processing and some kind of manipulating technologies were also conducted for this research.

Geographical and Population Background of the Study Area

Geographical Background

On the eastern bank of the Ayeyarwady River, Mandalay City is situated and it lies almost at the center of Myanmar, Figure 1. That is why it is the commercial herb of upper Myanmar, especially not only for the travel but also for transport commodities in three ways, and the third city of the country. Besides, the city is also one of the tourist attractions sides in Myanmar, Mandalay Hill, Taunthaman Inn, historical sites, etc. Besides, the government trying to conduct the development of infrastructure and some sectors are under construction in the city. Moreover, there is needed to transform the market economy in the current situation. Therefore, Mandalay City is chosen as a study area to fulfill the basic need and amenities of public respect with services.



Source: OSM (Open Street Map), and MCDC

Figure 1 Location Map of the Study Area

Population Distribution and Density

In the population distribution, near the core areas or in the trading center of urban areas, most people are concentrated. In Aungmyaethazan Township, the population is concentrated in the western part and evenly distributed in the eastern part. In Chanayethazan and Mahaangmyae townships, the population concentration is found in the western parts and sparse in the eastern parts of these townships. In the Chanmyathazi and Pyigyidagun Townships, the population is evenly distributed. In the Amarapura Township, the population is concentrated in the southern part of the urban area.

As the population increased, especially in the Pyigyidagun township, the related population density should also be viewed as enough or not health care service for their amenities. Therefore, the population distribution pattern and density in the city are considered as the base data for analysis. As shown in Table 1, the total population of Mandalay City is 1,306,370 persons in 2014. Chanmyathazi Township had the densest population with 283,781 persons whereas Amarapura Township had the least population with 80,824 persons, among six townships of Mandalay City.

Table 1 Population Density of Mandalay City (2014)

| Sr No. | Township | Area (Sq-km) | Population (2014) | Population Density |
|--------|--------------------|--------------|-------------------|--------------------|
| 1 | Aungmyaythazan | 28.59 | 265,779 | 9296 |
| 2 | Chanayethazan | 13.19 | 197,175 | 14949 |
| 3 | Mahaaungmyay | 14.83 | 241,113 | 16258 |
| 4 | Chanmyathazi | 26.1 | 283,781 | 10873 |
| 5 | Pyigyidagun | 26.56 | 237,698 | 8949 |
| 6 | Amarapura (Urban) | 11.05 | 80,824 | 7314 |
| Total | | 120.32 | 1,306,370 | 67640 |

Source: Department of Population, Ministry of Labour, Immigration and Population Department

Discussions

On the part of the government, it has to support other infrastructure like hospitals to be efficient and with less expenditure for the public. Because they let the private hospitals open for the health care service and there became needs to get sufficient support and must conduct these functions mentioned above and facilities to the public who cannot afford a lot of money for the long term but want to be cured. Systematic training programmes are also needed to continue to produce professional or well-trained staff and to apply for systematic techniques and types of equipment. The private hospitals and clinics have increased in number and for update functions; the public health service needs to deliver the service whatever and whenever the public needs in the health sector. Therefore, the distributions of health care centers, their functions, the structures of the facilities, and other supporting programmes of the public hospitals in the study area were studied.

The health care centers in the study area are divided into two groups; hospitals and regional clinics, shown in Table 2. The hospitals in the study area are General Hospital, Eye, Ear, Nose and Throat Specialist Hospital, 500 Bedded Mandalay Orthopedic Hospital, Central Women's Hospital, Children Hospital (550 and 300 Bedded), Mental and Drug Treatment Hospital, Traditional Hospital and serving the functions and facilities of public health care service. The regional clinic takes care of public health especially for pregnant women and other health problems.

Table 2 Number of Health Care Service Centers in Mandalay City (2016)

| Sr No. | Type of Hospital | Number of Hospitals | Number of Regional Clinics | Total |
|--------|------------------|---------------------|----------------------------|-------|
| 1. | Aungmyaetharzan | 2 | 4 | 6 |
| 2. | Chanayetharzan | 3 | 2 | 5 |
| 3. | Mahaaungmyae | 1 | 5 | 6 |
| 4. | Chanmyatharzi | 2 | 4 | 6 |
| 5. | Pyigyidagun | 0 | 3 | 3 |
| 6. | Amarapura | 3 | 2 | 5 |
| | Total | 11 | 20 | 31 |

Source: Wards Administrative Offices

Analysis

Spatial Concentration

To identify the concentration of public services in the townships, the distribution of the population is considered. The spatial concentration is calculated and to quantify the degree of the relative concentration of activity in the analysis of areal localization by the location quotient method. (Rahaman and Salauddin, 2009).

The location quotient for the i^{th} area is defined as follows;

$$LQ = (x_i / x) / (n_i / n)$$

Where,

x_i = number of facility i in a given township

n_i = population of the concerned township

x = number of facility i in Mandalay city

n = total population of Mandalay city

The following criteria are considered to interpret the Location Quotients Value;

$$LQ < 1.0$$

If the LQ value is less than 1, it can be suggested that the concentration of a particular facility in a township will be the low level.

$$LQ = 1.0$$

If the value of LQ is 1 or nearly 1 indicates, it can be assumed that the particular facility in a given township will be the median level.

$$LQ > 1.0$$

If the value of the location quotient as for particular facility in a particular township is exceeding 1, the concentration can be identified high level.

The number of facilities (health care centers) and the LQ values in each township is shown in Table 3. These location quotients identify the concentration or de-concentration of public facilities in the different townships of the Mandalay city.

Table 3 Number of the Health Care Centers and Location Quotient Value in the Different Townships (2016)

| Sr | Townships | No. of Health Care Centers | LQ Value |
|----|-----------------|----------------------------|----------|
| 1 | Aungmyaytharzan | 6 (*31) | 0.9 |
| 2 | Chanayetharzan | 5 | 1.0 |
| 3 | Mahaaungmyay | 6 | 1.0 |
| 4 | Chanmyatharzi | 6 | 0.8 |
| 5 | Pyigyidagun | 3 | 0.5 |
| 6 | Amarapura | 5 | 2.6 |

Source: Based on Ward Administrative Offices data

* Number that represents the total number of health care centers

In reviewing these calculated results, the concentration of health care centers in Amarapura township is the high level. In Aungmyaytharzan, Chanayetharzan, Mahaaungmyae,

and Chanmyatharzi townships the concentration of health care centers in the median level but the Pyigyidagun Township's health care center concentration stand as the low level.

Spatial Disparity

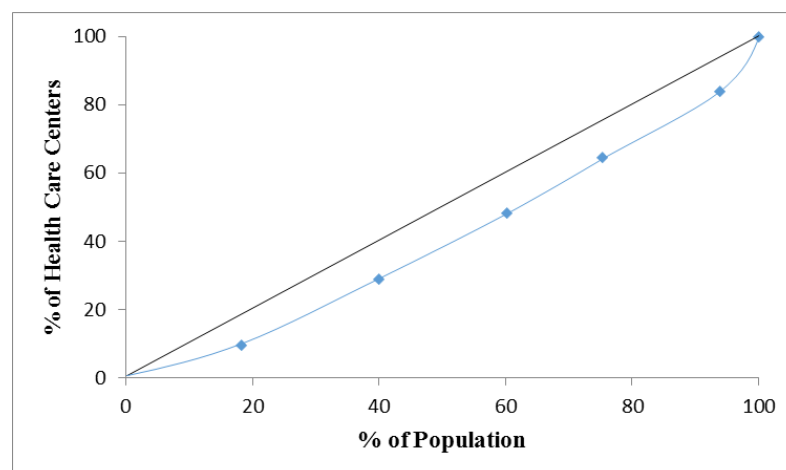
In this data analysis, the cumulative frequency curve compares the distribution of a specific variable with the uniform distribution that represents equality. The Lorenz Curve analysis shows that the greater the deviations of the Lorenz curve from the straight line, the greater the inequality. In calculating, the cumulative proportion of a particular facility is the Y-axis and the cumulative proportion of the population of the townships is X-axis.

In this result, according to Table 4 and Figure 2, there is a little deviation of the curve and 45% of the hospitals supplied for 74% of the population whereas it is close to the diagonal line for the other points. Therefore, the distribution of the current number of health care centers is not proportional to the size of the population. Also, there is calculated for dissimilarity index and it means the higher the value of DI the higher the disparity between the distributions of two variables.

Table 4 Lorenz Curve: No. of Hospitals (Z₁) and Population (Z₂) (2016)

| Sr No | Townships | (Z ₁) | (Z ₂) | (Z ₁)/(Z ₂) | Rank | % (Z ₁) | % (Z ₂) | Cummu % of (Z ₁) | Cummu % of (Z ₂) | Ds |
|-------|-----------------|-------------------|-------------------|-------------------------------------|------|---------------------|---------------------|------------------------------|------------------------------|----|
| 1 | Aungmyaytherzan | 6 | 265779 | 0.000023 | 3 | 19.35 | 20.34 | 48 | 60 | 12 |
| 2 | Chanayetherzan | 5 | 197175 | 0.000025 | 4 | 16.13 | 15.09 | 65 | 75 | 11 |
| 3 | Mahaaungmyay | 6 | 241113 | 0.000025 | 5 | 19.35 | 18.46 | 84 | 94 | 10 |
| 4 | Channyatherzan | 6 | 283781 | 0.000021 | 2 | 19.35 | 21.72 | 29 | 40 | 11 |
| 5 | Pyigyidagun | 3 | 237698 | 0.000013 | 1 | 9.68 | 18.20 | 10 | 18 | 9 |
| 5 | Amarapura | 5 | 80824 | 0.000062 | 6 | 16.13 | 6.19 | 100 | 100 | 0 |
| | Total | 31 | 1306370 | | | | | | | |

Source: Respective Offices, Mandalay Region



Source: Based on the table-4

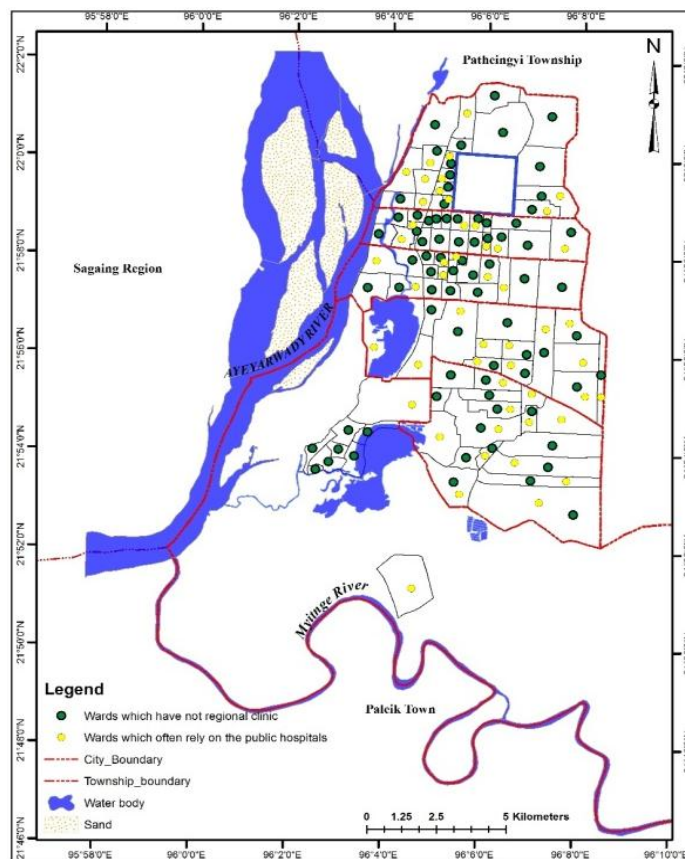
**Figure 2 Distributions of the Health Care Centers and Population in Townships
The Result from the Qualitative Approach**

According to the responses of the wards administrators from the interview, 24 wards have a regional clinic or sub-regional clinic, while the remaining 51 do not have the regional clinic. For other questions, the chairperson of 52 wards answered that the public relied on these general health care centers for both serious diseases and minor ones, whereas there were 34 wards from which the public often went to the regional clinic, see in Table 5.

Table 5 Questions and Responses for the Health Care Service (2017)

| Sr. No. | Questions | Yes | No | No Response |
|---------|---|-----|----|-------------|
| 1 | Does your ward have a government health care center? And if you have canned you tell me the name of these centers? | 24 | 51 | 1 |
| 2 | Do the people go and sets treatment for normal diseases to these health care centers? | 34 | 17 | 25 |
| 3 | Which health care centers were the most often places people go to and set treatment for their serious diseases? | 52 | - | 24 |
| 4 | Do you have the activities can support people's health and what are they or will be? | 74 | - | 2 |
| 5 | How do you manage if there are health care services | 76 | - | - |

Source: Wards Administrative Offices



Source: Field Survey and Interview Method (2017)

Figure 3 THE WARDS WITH LESS SUPPORT IN HEALTH SECTOR (2017)

Besides, a very high ratio of the public who relied on the general health care centers is prominently more than the public who relied on the private one (see in Figure 3). Furthermore, they have to rely upon the private volunteer associations, if there have any emergency cases like accident cases. The 74 ward administrators, except the two, answered that they have been taking the development of the public health sector together with regional clinic staffs every month for seasonal vaccination and sometimes they have to manage by owned ways.

The Result from the Quantitative Approach

Reasons for Selecting Health Care Centers

To find out the reliability of the public health care in Mandalay City, the patients would select the health care centers which can be trusted for their illness, collected through the questionnaire. Regarding minor health problems (like illness, coughing, flu, etc.), the highest percentage of sampled people answered that they want to consult the public health care centers like the public hospitals. But regarding the serious health problems, they answered that they feel better by going to the following health care centers, see in Table 6. According to the result, the highest number of households who joined the government hospitals was 1348 households, see in Table 7. The reasons for why they choose health care centers are tabulated as follows:

Table 6 Number of Households for Selecting the Health Care Centers

| Sr. No | Questions | Households | Percent |
|--------|--------------------------|------------|---------|
| 1 | ward clinic | 98 | 7 |
| 2 | other wards clinic | 47 | 3 |
| 3 | private hospitals | 294 | 21 |
| 4 | general hospital | 782 | 57 |
| 5 | children hospitals | 51 | 4 |
| 6 | traditional hospital | 14 | 1 |
| 7 | 300 bedded hospital | 77 | 6 |
| 8 | by medicine in the house | 11 | 1 |
| 9 | bone hospital | 1 | 0 |
| | Total | 1375 | 100 |

Source: Compiled from questionnaire responses

Table 7 Reasons for Selecting the Hospitals

| No. | Purposes for: | No. of Respondents | Total respondents | % | No Response |
|-----|--------------------------------|--------------------|-------------------|----|-------------|
| 1 | close to house | 180 | 1348 | 13 | 27 |
| 2 | recovery within a short period | 382 | 1348 | 28 | 27 |
| 3 | fewer charges for treatment | 358 | 1348 | 27 | 27 |
| 4 | preferring the services | 158 | 1348 | 12 | 27 |
| 5 | popular | 57 | 1348 | 4 | 27 |
| 6 | others | 213 | 1348 | 16 | 27 |

Source: Compiled from questionnaire responses

Findings

According to the spatial analysis, the spatial concentration of the health care centers is found the median level for three townships and only each township for low and high levels. But in the Lorenz curve analysis, it means the current number of the health care centers is insufficient for the populations. In addition, higher disparity (inequality condition) is also found between the number of health care centers and population, according to DI. From the qualitative approach, 51 wards administrators said that they do not have the regional clinic and there are also people who relied on the public hospitals. But in the quantitative approach, it was found that the 925 households out of 1375 households respond that they often go to hospitals when they get serious diseases. In addition, they explain why they choose these health care

centers; 382 households said they recover within a short period and 358 households said that there are fewer charges for treatment.

Conclusion

After analyzing the secondary and primary data, as long as the city population grows and extensions, there will need to support the facilities and take caring functions of the health service sector. Township-wise available services were figured out along with the number of households or concerned population. According to the results and findings mentioned above, the health care services in each township are provided but there are found some weaknesses and strengths. The responses from the questionnaire result indicate the weaknesses of insufficient health care staff and facilities, rare space for patient's families, need more car parking areas, etc. But the public recommend some strength that is the provision of some medicines and reasonable charges in health care services. Moreover, there are not enough regional clinic centers in every ward and when happen to the emergency cases and the private voluntary associations have been relied on by the public in rush hours. According to the definitions mentioned above in the introduction, it can be assumed that the activity of the health departments has to support both the physical and mental health of the public who felt serious health problems and have to support some functions for the family of the patients who are together with the patients. Therefore, it can be said that the health care service can support and serve people deliver for their physical needs in some way but it cannot fulfill the mental amenities of the public in emergency cases and rare space for patient's families. Furthermore, there is also a need to allocate regional health clinics wherever it needs instead of one in each township. In Pyigyidagun Townships, there did not have a hospital and there have some problems inaccessibility to the health care centers (hospitals). Furthermore, there has more difficulty in going to the Traditional Hospital not only for Pyigyidagun but also for Amrapura, etc. That is why these facts prove the hypothesis and should allocate some health care centers to improve the health care service. Therefore, health care service is weak for the public who live in the fringe area of the city although it has been extending. It means the government needs to support facilities and public amenities or easy to get these health care centers for the newly extended wards which located in the urban fringes at the outskirts areas and new urban areas concerning with health care services.

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