# Impact of backwardness on health-case study Pakhiralaya village, Gosaba Block, Sundarban, West Bengal, India

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## Abstract

The Sundarban is a national park, biosphere reserve and tiger reserve in West Bengal, India. Pakhiralaya village is a part of Sundarban and it located exact opposite to the buffer area of Sundarban reserve forest. This village has its unique natural beauty and it is far from the noise of the city. But this area is suffering from backwardness and is one of the underdeveloped villages in Gosaba block.  The main reasons for being backward are illiteracy, age old beliefs, unemployment, engagement with primary economic activities and lack of infrastructure. The overall backwardness of this village seriously affects the health condition of the village because villagers often use home remedies to treat serious health issues due to lack of proper medical facilities. They also do not have the proper knowledge to judge the seriousness of the disease which often leads to untimely death and also causes pre natal, natal, and maternal death. They also treat snake or other animal bites from local ojhas or gunins or quake doctors (local people with herbal medical knowledge, they are normally not registered as medical practitioners). The backward condition of this area also keeps the educated doctors or educated persons away. This certain conditions create a hopeless situation in the sector of health and hygiene.

**Keywords:** Backwardness, health condition, medical facility, health and hygiene.

## Introduction

The large tidal delta in West Bengal known as the Sundarbans was formed ages ago in the flood plain of two large rivers, the Ganges and the Brahmaputra, emanating from the Himalayas and more or less converging in the area formerly occupied by Undivioled Bengal (Gupta, 1957). The Sundarban is a biosphere reserve and world's largest mangrove area in the delta formed by Ganges, Brahmaputra and Meghna rivers in the Bay of Bengal. The Sundarbans stretches over 10,000 km$^2$ and are located at the South-West extremity of Bangladesh and the South-East of the state of West Bengal in India (Hussain and Acharya, 1994). The forest covers 10,277 Sq.km of which about 6017 Sq.km are in Bangladesh. It became a part of UNESCO world heritage site in 1987. The Sunderbans tidal estuary comprises an area of 4266.6 sq. km, of which the tidal and inter-tidal mangrove forest area is estimated of 2300

sq. km, water area is 1750 sq. km and the rest are river banks, beach areas or naked forest floors (Mandal and Ghosh, 1989).

Many intertidal flat, sand and swampy areas have been utilized for agricultural activities since last two centuries. Besides of these physical consequences most of the inhabited islands suffer from inadequate infrastructural facilities. Erosion is a major threat for the communities living in coastal island. Fishing and tourism activities further create pressure on coastal track in Northern part of the Sundarban (Mukherjee, 2002).

From the total number of 102 island of Sundarban regions, Pakhiralaya village of Gosaba Island has been selected as our study area because of its unique location. Pakhiralaya village is exactly opposite of the buffer area of Sundarban biosphere reserve and only separated by a small tidal river namely Gomor river. Pakhiralaya village is far from any civic facilities like college, hospital and transport facility.

The Sundarbans natural resources play an important role in supporting the local economy and maintaining conditions for supporting other ecosystems in the coastal region. People in Sundarban live in an ecologically vulnerable environment. The area is cyclone prone, monsoonal and low-lying with many human settlements located alongside the waterways and coastline. Around 4.1 million people live in Sundarban (Census of India, 2001) (3.5 million in Bangladesh), 32% of whom depend on the resources of Sundarban mangrove forest directly or indirectly. Forty-four percentage of the population belongs to schedule caste and tribe, 65% are living on the agriculture-based economy, of which 50% are landless agricultural laborers and marginal farmers (Chowdhury et al., 2016).

**Backwardness on health-case study, Pakhiralaya village**

Pakhiralaya village is situated 6.9 km away from sub-district headquarter Gosaba and 97.6 km away from district head quarter Alipore. The total geographical area of this village is 479.5 hectares (approx.). Canning is the nearest town to Pakhiralaya which is approximate 49 km away from Pakhiralaya. The most of the villagers in this village are engaged with primary economic sector like agriculture, fishing, wood cutting and honey collecting etc. the literacy level in this village is also low so most of the villagers depend on local quake doctors or take home medicine to treat illness. The nearest hospital i.e., Gosaba rural hospital is about 7 km away from Pakhiralaya. But the infrastructure of this hospital is not well developed. The patients with serious health issues have to travel almost 49 km to reach Canning or occasionally the patients needed special care have to travel 97.6 km to reach Kolkata to get better treatment. Most patients do not want to spend time and money to get better treatment. so they depend on quake doctors and for this reason the mortality rate is quite high in this village. Poverty and poor standard of living also harmed the health condition as they neither get any better medical facility nor get any education to maintain a healthy regime. They do not have any idea on health and hygiene. Most of the villagers prefer to use the open space for toilet. They also used water collected from pond or river to cook food which often leads to water transmitted diseases. Till date a number of woman gives birth at home which triggers natal and maternity death.

Also the Government and villagers are equally less interested in building a hospital to give proper treatment to the villagers; this type of thoughtlessness also helps in growing popularity of the local quake doctors. The overall health condition of the village is very poor.

Lahiri (2015) discuss about infrastructure gap of every sector as well as inadequacy and socio-economic condition of Sundarbans region. He also focuses in his on migration and gradually changes of demographic patterns change in Sundarbans region. The change in salinity affected both mangrove plants and animals in a variety of ways (Karim, 1995).

The Indian Sundarban lies between 21°31' to 22°53'N and 88°37 to 89°09'E and comprises 19 community development blocks – 13 under South 24 Parganas and 6 under North 24 Parganas district (covering 190 Gram Panchayats [GPs] in 1,064 villages with a total area of 9,630 km$^2$) of West Bengal state. The Sundarban bioreserve is one of the most important biodiversity (both aquatic and terrestrial) treasures of the world with approximately 84 different mangroves and mangrove-associated vegetation as well as over 1,500 species of fauna (Raha and Saha, 2004).

### Reason for choosing the study area

Pakhiralaya village is a small part of Sunderland region which is located at the extreme South of Gosaba Island and exact opposite of the core region of Sunderland biosphere reserve. Geologically, this is the coastal stretch of Indo-Gangetic plain, covered by recent to sub-recent alluvium of very thick Tertiary sediments (Paul 2002).

The main reasons for choosing this area are -

➢ Unique life style of the local dwellers of transitional zone of the Sunderland Biosphere reserve.
➢ Abundance of different type of plants.
➢ Abundance of animal, reptile and insect species and their conflict with the human.
➢ Impoverished health condition and high morbidity rate in both human and non-human creatures.

### Aim and objective of the study

(i) To know about the usefulness of mangrove forest.
(ii) To know about the use of different kinds of herbal plant mainly found in forest area and its surroundings.
(iii) To know about the health issues in this area.
(iv) To know about the medical facilities provided to the villagers.
(v) To know about the treatment procedure of quake doctors who are working like a pillar of medical system in the village area.
(vi) To know about the life style of the population living here.
(vii) To know about the reason of conflict between man and animal in Sundarban area and its consequences on general health.
(viii) To know the relation between backwardness and health system.

### Materials and Methods
The method of study is divided into three parts-

### Pre-field Method
Pre-field method is all about to collect information about the study area and its surroundings and its habitat also to collect administrative maps, information about the

location of the hospital, health centre, also create proper questionnaire for hospital, health centre and household survey to know about the exact health condition of Pakhiralaya village.

### Field Method

Visiting the study area and collects primary data during field tour goes under field method. Data collected from hospital, health centre and household survey goes under primary data collection.

### Post Field Method

In this method all data collected from pre-field and field method are evaluated properly with    proper diagram and charts. After the evaluation procedure one can easily conclude the short comings and requirements of the health system of Pakhiralaya village.

### Results

### Study of Socio-economic condition

The number of total population of 200 houses is 942. Out of 942 populations 160 populations come from general category while SC and ST category are 314 and 468 respectively. In the village cast composition the dominance of ST category is easily seen following by SC category. Religious practice of 200 household is Hinduism. The number of population migrated population in Pakhiralaya are 223 in which number of male population are 96 and female population are 129. If we notice the causes of migration we can find the main cause of migration is marriage which is also a main cause of female migration in Pakhiralaya. While the main cause of male migration is education business and service.

The socio economic factors that determine health condition include: employment, income and education. Employment and income has positive relationship with standard of living. An increase in daily income helps us to fulfill our requirement and also helps us to lead a better life. More employment brings more money and money helps us to live better. Economic prosperity helps us to get a better medical care for us. On the other end education helps us to take a better decision on health issues, maintain a healthy regime, gives idea about health and hygiene, and also aware us about prevention of certain diseases. In the Pakhiralaya village the main livelihood of the villagers is farming but they also make a living by fishing or collecting wood and honey from the forest. The education qualification of the most villagers is below tenth grade.

### Household characteristics

The primary household Survey in the heard conducted by the study team reveals the following demographic characteristics out of 200 houses, 136 houses are kaccha, and 42 houses are pakka. The roof building materials in some cases are of concrete. Out of 200 houses 30% of houses depend on river water as a source of drinking water while 20% of houses depend on tap water and to be well. Open place toilet is much used in Pakhiralaya village as 80 houses out of 200 houses have no toilet facility. From the above said data it is easily established that general health service of Sundarban is very much dissatisfactory.

### Educational profile

Out of 942 populations the percentage share of literacy level has been calculated where 42.98% are literates and 57.32% are illiterates. The gender wise share of literacy has also been calculated where 22.82% male and 19.85%

female are literates and 38.22% male and 19.11% female are illiterate. It indicates literacy level is a little high for male than female. The literacy status has been displayed with gender wise variation where it is evident that most of the people are educated only primary levels. In primary, secondary, higher secondary and graduation category, the male literacy is dominant.

## Occupational pattern

If we notice the occupational pattern it is seen that most of the villagers are attached with cultivation closely followed by fishing. Some people depend on honey and crab collection while few people earn a living as a quake doctor. A very few people are engaged with private service. Average monthly income of this area is around 5000/- (approx.).

## Health condition

Sundarban poses its unique public health challenge due to geographical vulnerability. The entire area is crisscrossed by tidal rivers or estuaries from north and south and by innumerable narrow tidal creaks from east to west. The area (including West Bengal and Bangladesh) outside the reserve forest of Sundarban is home of about 4 million people spreads over 19 administrative blocks, is the human face of the Sundarban which epitomizes poverty, deprivation and acute struggle against geographical challenged. It is however important to note that the geographical challenges vary across blocks. People, who live in the 'remote' Sundarbans the block adjacent to the forest area or the Bay of Bengal face much harder problems compared to those who live in the 'peripheries' and closer to Kolkata.

Our study area Pakhiralaya village is closer to the forest area and thus the health condition of this village is much more vulnerable than other surrounding areas.

From the primary data collected from household and Gosaba hospital survey we get a clear view of common health problems of Pakhiralaya village, which are-

1. **Waterborne diseases** are a certain medical conditions caused by pathogenic micro-organisms that are transmitted in water. This type of disease can be spread while bathing, washing or by drinking water. Various from of waterborne diseases are diagnosed here which are:-

    a) **Amoebiasis:** A parasitic infection, of the colon caused by the protozoan parasite Entamoeba histolytica, which are very common in Pakhiralaya village.

    b) **Giardiasis:** A Protozoan group called Giardia lamblia is responsible for this disease. It goes under one of the dominating disease in Sundarban as well as Pakhiralaya village.

    c) **Cholera:** Cholera is a bacterial disease causing severe diarrhea and dehydration, usually spread in water. Cholera is fatal if not treated properly.

    d) **Dysentery:** It is a bacterial disease caused by a microorganism called *Shigella*. This bacteria attacks cells in the large intestine, cramps, anal pain and bloody stool.

    e) **Typhoid fever:** This type of fever occurred when the water is contaminated by Salmonella typhi

bacteria. The main symptoms are high fever, vomiting, vertigo etc.

f) **Hepatitis A:** This type of Hepatitis generally caused by ingestion of contaminated food or water and a very common disease in Sundarban.

2. **Mosquito transmitted disease:-** It is a very common disease in Pakhiralaya village.

a) **Dengue fever:** Dengue is a viral disease spread by Aedes mosquitoes that bites in daytime. The general symptoms are high fever, muscle pain, vomiting, nasal bleeding etc. it is fatal if remain untreated.

b) **Malaria:** It is a mosquito transmitted disease caused by parasitic protozoans belonging to the plasmodium type. The main symptoms are fever, headache, vomiting etc.

3. **Flu:** It is very common disease in Pakhiralaya village usually occurs in the time of seasons change.

4. **Pulmonary disease:** It is not falls under such diseases which is often seen in Pakhiralaya village. Generally lung diseases are not very common in Pakhiralaya. Only few household out of 200 household has experienced such disease.

5. **Heart/cardiac disease:** The cases of heart disease are generally seen in older population of Pakhiralaya village. But it is rare in young people.

6. **Nerve disease:** Few cases of nerve disease has been diagnosed in old age people of Pakhiralaya and also seen in the victims of animal attack.

7. **Anaemia:** It is a medical condition in which the red blood cell count or hemoglobin is less than normal. This type of medical condition is often seen in womenfolk of Pakhiralaya village.

8. **PSTD:** A disorder characterized by failure to recover after experiencing or witnessing a terrifying event. It generally found in victims, mainly survived tiger, crocodile or snake attack.

In Pakhiralaya village we have collected the history of diseases from surveyed house. According to the data all household face flu type diseases at the time of seasonal change. While the second leading health problem the houses face is anemia. Mainly the woman folk of Pakhiralaya village face suffer from this health collection. Mosquito a transmitted disease comes third closely followed by water borne diseases. Some households also have a history of hepatitis, pulmonary disease, heart attack, and nerve diseases, a few households also have patient with PSTD who survived after snake or crocodile attack.

If we talk about the death occurs in surveyed houses of Pakhiralaya we can easily identify the high rate of pre natal and natal death and also high maternal death. Beside this the highest death causes from old age disease followed by mosquito transmitted disease and water born disease and cardiac arrest.
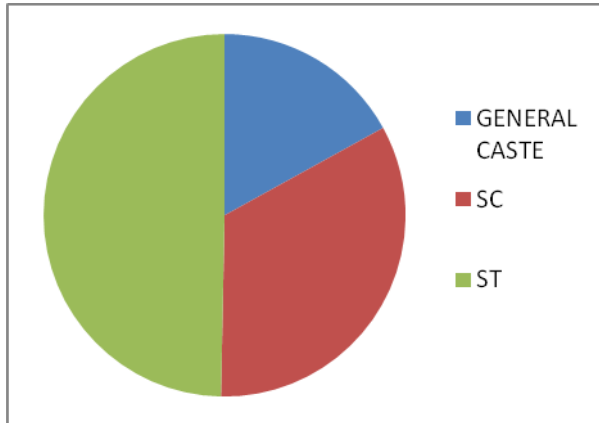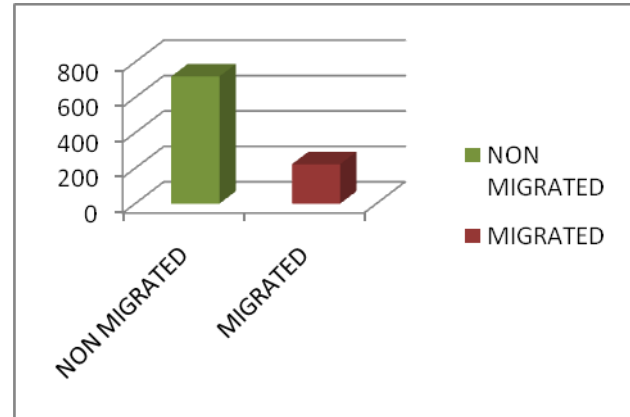
**Fig. 1. Caste structure of Pakhiralaya village.**



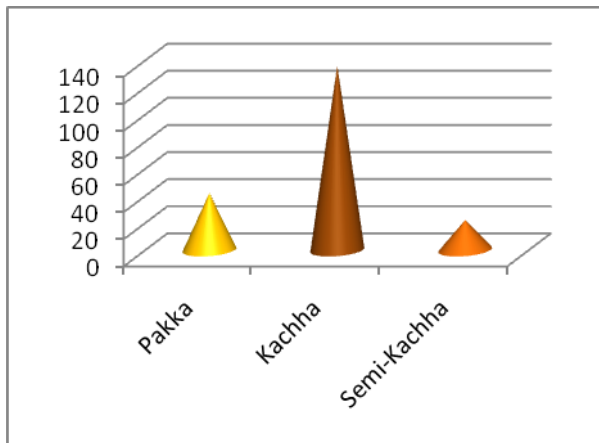**Fig. 2. Migrated and non migrated population of Pakhiralaya village.**



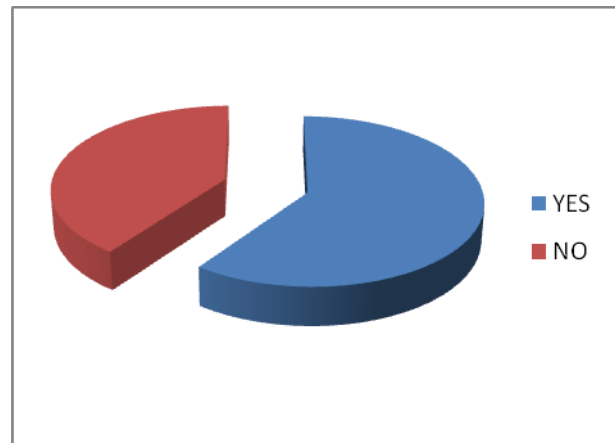**Fig. 3. House condition in Pakhiralaya village.**



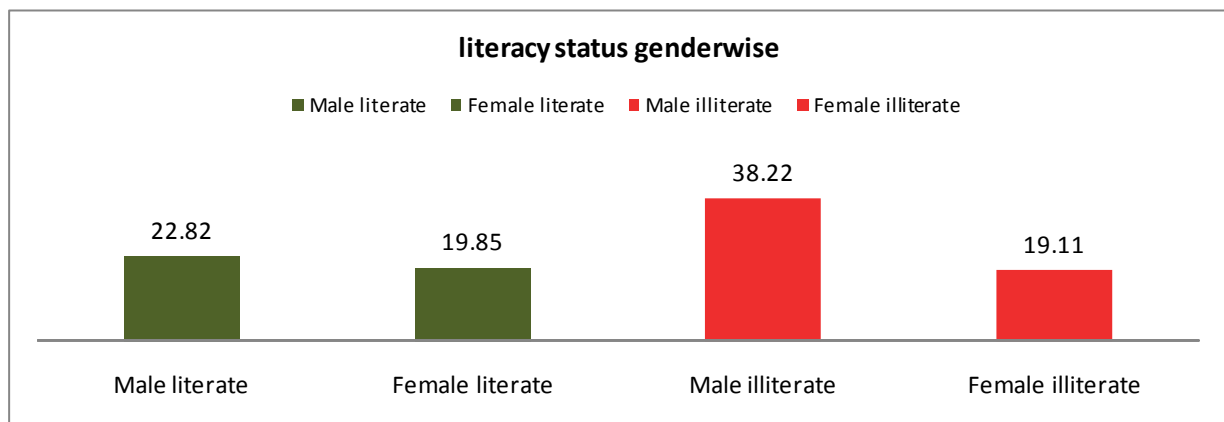**Fig. 4. Facilities of personal toilet in Pakhiralaya village.**



literacy status genderwise

■ Male literate   ■ Female literate   ■ Male illiterate   ■ Female illiterate

| | | | |
|---|---|---|---|
| 22.82 | 19.85 | 38.22 | 19.11 |
| Male literate | Female literate | Male illiterate | Female illiterate |

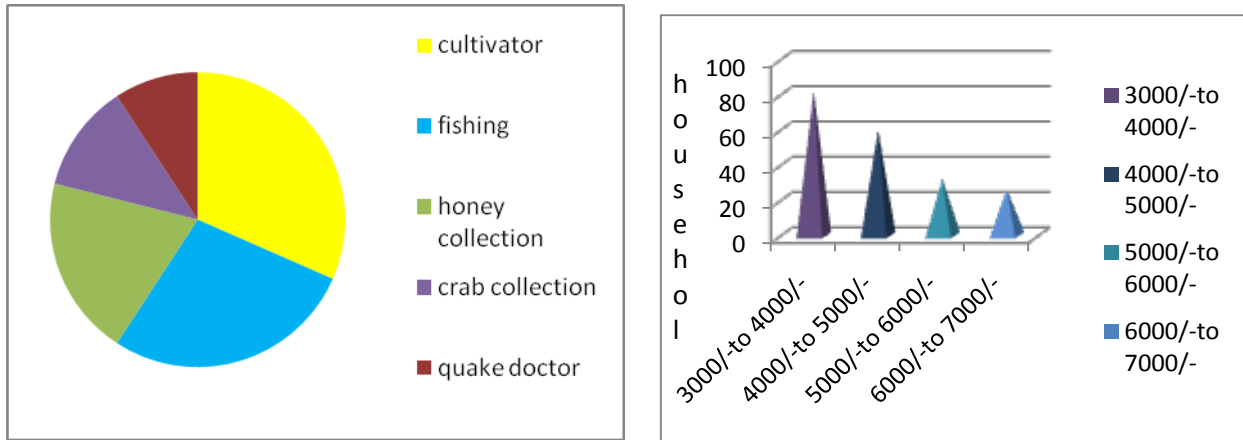**Fig. 5. Literacy status of Pakhiralaya village.**

**Fig. 6. Occupational structure of Pakhiralaya village.**

**Fig. 7. Monthly Income of Pakhiralaya village.**

**Table 1. The main diseases in Pakhiralaya Household.**

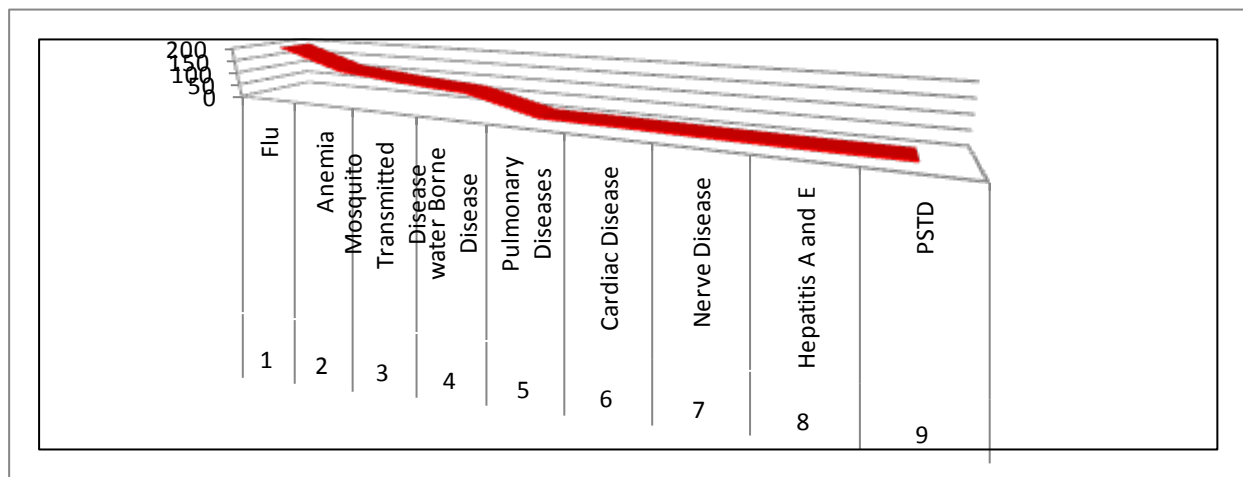| Sl. No. | Diseases | Household |
|---------|----------|-----------|
| 1 | Flu | 200 |
| 2 | Anaemia | 120 |
| 3 | Mosquito transmitted disease | 95 |
| 4 | Water borne disease | 78 |
| 5 | Pulmonary diseases | 12 |
| 6 | Cardiac disease | 10 |
| 7 | Nerve disease | 6 |
| 8 | Hepatitis A | 4 |
| 9 | PSTD | 3 |



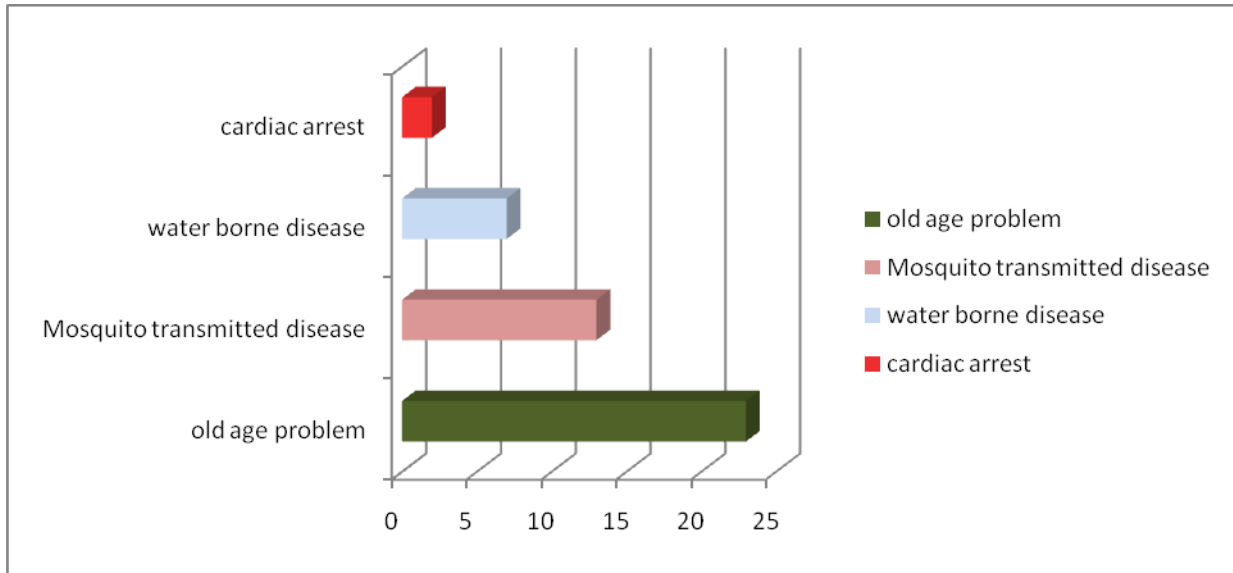**Fig. 8. The main diseases in Pakhiralaya Household**

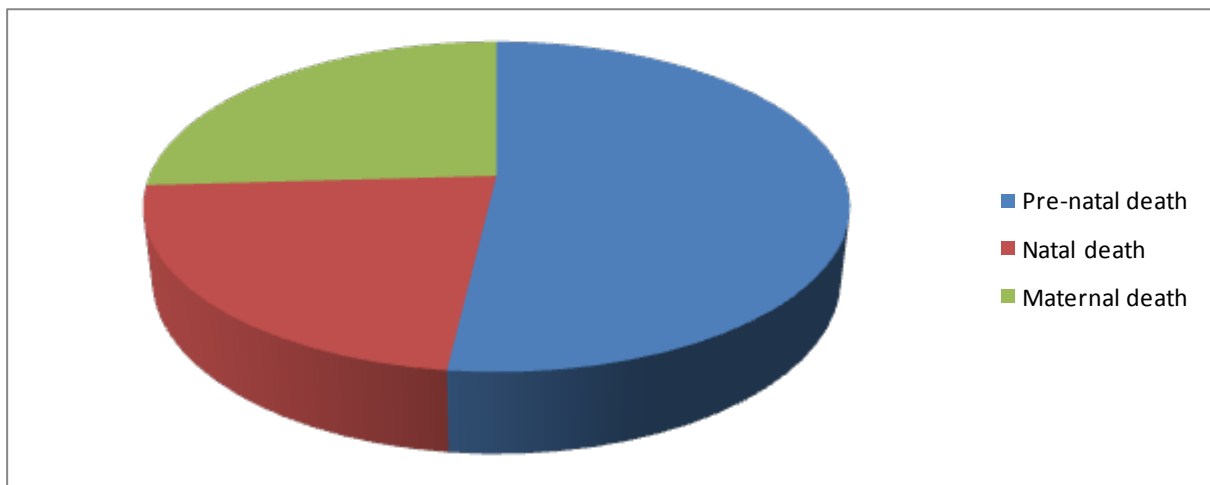**Fig. 9. Causes of death in Pakhiralaya village.**



**Fig. 10. Natal and maternal death in Pakhiralaya village.**

**Table 2. Treatment facilities received by Pakhiralaya villagers.**

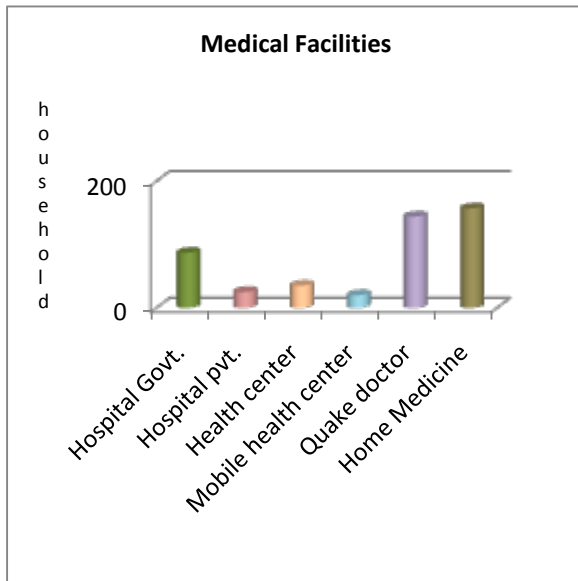| Treatment facility | Households |
|---|---|
| Hospital Government | 87 |
| Private Hospital | 25 |
| Health centre | 35 |
| Mobile health centre | 20 |
| Quake doctor | 144 |
| Home Medicine | 157 |

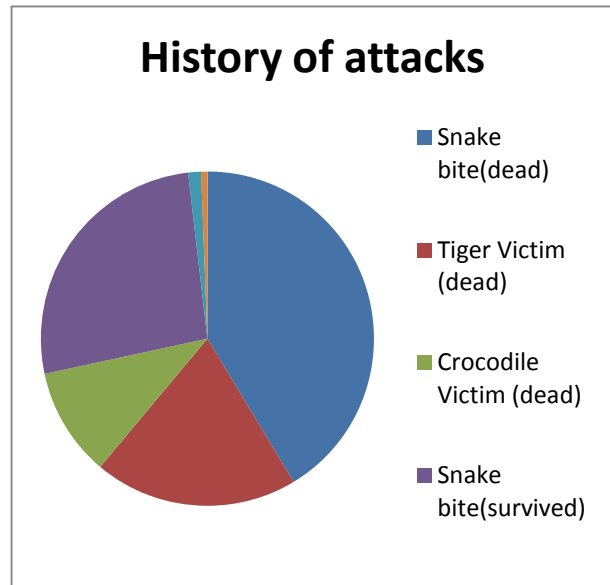**Fig. 11 Treatment facilities received by Pakhiralaya household.**



**Fig. 12. History of animal and reptile attacks in Pakhiralaya village.**

**Table 3. History of attacks by animals and reptiles in Pakhiralaya village.**

| Animals and Reptiles | History of attacks |
|---|---|
| Snake bite(dead) | 67 |
| Tiger Victim (dead) | 32 |
| Crocodile Victim (dead) | 17 |
| Snake bite(survived) | 43 |
| Tiger Victim (survived) | 2 |
| crocodile Victim (survived) | 1 |

**Causes of death**

Pakhiralaya is a part of Gosaba Island and the whole Gosaba Island has only one Government hospital, i.e., Gosaba Rural Hospital. The bed limit of this hospital is only 30 and has few MBBS doctor. Thus the doctor–patient ratio is very high and the infrastructure is also inadequate to provide good health care facilities. A private hospital also situated at Gosaba market area named Chokher Alo and Ma Durga Hospital but it has a record of poor performance in medical treatment.

In Pakhiralaya village patients with serious health issues has to travel far to get better treatment. The villagers of Pakhiralaya village mainly depend on home remedies for treating normal flu and abdominal diseases. They also depend on quake doctors or ojhas or gunins for treatment.

Pakhiralaya village also situated in the transitional zone of Sunderban bio-sphere reserve thus it is exactly opposite to the buffer area. For its unique location the local people suffered occasional animal attack.

The area also has enough greenery and bushes in which stay venomous serpents. Thus the local dwellers often fall prey to animals or suffer snake bites.

The victims, who survived an animal abuse or the families of dead animal victims often suffered from PSTD, trauma and insecurity which create critical mental conditions but they are either ignored by the family or get treatment from quake doctors, which is very pathetic.

### How backwardness affect health and hygiene

The Sundarban biosphere area has its natural beauty but underneath the natural beauty it also has some darkness like illiteracy, poverty, unemployment, malnutrition etc. Here in Pakhiralaya village most of the people are engaged with primary sector like cultivation, fishing, honey and crab collection etc. For this reason the total income per family is also low and most of the family cannot afford the cost of treatment. So they want to save the money which would have been spent for medical purposes. They generally depend on home medicine or local quake doctor to treat diseases. The literacy rate is quite low here. So illiteracy triggers different type of superstition in local people. So they easily believe in the treatment done by johns, gunins and quake doctors. The area also separated by numerous rivers so it is also not easy to transport serious patients to Kolkata. Many believe that the underdeveloped infrastructure, isolated position, lack of modern amenities etc. are the main reasons the area is underdeveloped. The above mentioned reasons are also playing vital role in recruitment of teachers and doctors because no one wants to go there in the fear of losing facility of a town. So, the number of employee works in schools and hospitals are quite low. So the child of local dwellers does not receive good education, good health care or proper food to grow healthy and these system runs through generation after generation. Also most of the meritorious student wants to move to Kolkata and surrounding towns for a better living. So basically this area remains neglected.

### Conclusion

The natural beauty of Pakhiralaya is suppressed by the backwardness of this area. This region is separated from the city area due to its remote location. There are no good school colleges in this area, so the area lags far behind in education. Due to illiteracy, the inhabitants of this village are obsessed with superstition. This superstition is also seen in the medical field, most villagers prefer local quake doctors to treat their family members. They also have no knowledge of hygiene that often causes serious illness. Only ruling Government can put to an end to the backwardness of this area by doing some necessary development work. The Government should take some initiative to develop the transport route to connect Pakhiralaya village with nearest towns by road or railway. The patients often died in road due to bad condition of the road and complex and time consuming transport system. The Government and NGOs should contribute to open more Madhyamik and H.S level school to provide educational facilities to the students belongs to backward class like SC, ST, and OBC category and poor family background. Adult education is also needed to develop the area because education imparts knowledge, promotes awareness, eliminates superstition and helps us to take right decision. If adults are interested in learning, then the children will

also study. This area is also deprived of a good hospital with ICU and other special unit to treat serious illness. So a hospital with good health care facilities and efficient doctors is much needed here to stop the untimely dying without treatment. Government should encourage more health camp and mobile health centre to control superstition, supply necessary medicine to the patients and also provide knowledge about health and hygiene. If the area develops, the health condition will also improve. Government should introduce some special plan to develop the area and encourage the local handicraft, cottage industries and tourism industries to increase income level. Government should also provide some loan to local people to start their own business. Backwardness is like a curse that the government and the local people have to work together to overcome.

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