

Endemic Diseases in the Egyptian Rural Area and Its Economic Impacts

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Received: August 3 2013

Accepted: August 29 2013

ABSTRACT

Endemic diseases are the first health problem in Egypt because of its spread widely in rural and urban areas which affect the health of citizens in general and farmers in particular and their ability to work and produce, which reflects its negative impact on the national economy.

The study aimed to try to identify the proportion of agricultural workers that were infected with these diseases, the proportion of the labor force, the value of what government is spending to treat these diseases, and the extent of its impact on the efficiency of worker productivity in order to reduce the spread of these diseases and try to shrink them in the coming years in order to raise the efficiency of agricultural worker which has a positive reflection on the national economy. In order to reach the goal of the study, questionnaires from a random sample of 150 farmers from three governorates have been compiled from El Beheira, Kafr El-Sheikh and El Sharkia, and the questionnaire has been designed to cover the most important raised aspects to know the most important endemic diseases in the Egyptian rural area, in order to identify the most important causes of infection with those diseases, as well as the economic impacts resulting from these diseases on the efficiency of the Egyptian-farmer productivity, to make a comparison between the number of hours of work before and after the disease, and to determine the loss incurred by the Egyptian economy resulting from the infection, as well as human loss of the Egyptian citizen.

KEY WORD: Egyptian rural area – schistosomiasis –Virus (C)-Farmers- National economy

INTRODUCTION

The environment and health are an integral entity where they are affected and affect each other, and there are many environmental problems that threaten the health of citizens, which is the primary factor in development and therefore any prejudice to it will be a burden on the national economy. Perhaps one of the most important problems is pollution with all its kinds, which is caused by humans through wrong practices. Environmental pollution leads to the spread of many diseases, which are described as endemic diseases and at the forefront schistosomiasis, kidney failure, and what affects liver such as hepatic failure, and what affects blood like These diseases affect different age groups of both sexes. There are economic, social and environmental factors that help in the endemism and the incidence of these diseases that spread in the countryside more than in urban areas. These diseases affect human health which adversely affects the efficiency of the performance of the individual to work and reduce his productivity, reduce the resistance of the body and open the door to microbial infection of other diseases.

Research Problem:

Endemic diseases are the first health problem in Egypt because of its spread widely in rural and urban areas which affect the health of citizens in general and farmers in particular and their ability to work and produce, which reflects its negative impact on the national economy.

Research Objective:

The study aims to try to identify the proportion of agricultural workers that were infected with these diseases, the proportion of the labor force, the value of what government is spending to treat these diseases, and the extent of its impact on the efficiency of worker productivity in order to reduce the spread of these diseases and try to shrink them in the coming years in order to raise the efficiency of agricultural worker which has a positive reflection on the national economy.

Research Method and Data Sources:

The study relied on the analytical and descriptive method and used published secondary data by the Central Agency for Public Mobilization and Statistics, and many relevant websites to the subject of

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the study. questionnaires have been compiled where a random sample selected 150 farmers from villages Shesht, and Kafr Askar- Markaz Itai El Baroud in El Beheira, and villages of Qalin Elbalad and Kafr Abo Naem -Markaz Qalin in the governorate of Kafr El -Sheikh and villages of El Salehia Elkadima and El Awadi- Markaz Faqous in Sharkia governorate and the size of the random sample was 50 farmers per governorate.

Thus, the size of the questionnaire field of the project became 150 questionnaire forms, discharge tables were designed to dump all the data in the governorates under study and the cumulative tables of the governorates were done.

RESEARCH RESULTS

Most diseases that spread in the Egyptian rural area:

- Virus (C):

Hepatitis viruses spread and are endemic in many countries of the world, both in the forms of acute and chronic and they have become a problem for human health, and the virus (HCV) is on the top in the list of viruses that infect the liver where it is spreading at the level of the whole world by between 0.8 - 1.4%. The highest prevalence of the disease in the world is found in Egypt up to about 22% of the Egyptian people.

- Schistosomiasis:

Schistosomiasis in Egypt is a serious national problem as it is affecting a large segment of citizens of around 18 million people especially in the rural area and the initial symptoms of the disease are simple and unobtrusive till complications appear which affect all organs of the body such as skin system, nervous system, respiratory system, circulatory system, urinary system and digestive system and lead to attrition health and decrease the efficiency of the farmer productivity and thus lower national production by almost a third.

The study focused on identifying the most important health, educational and social aspects for the sample farmers and it found that about 10% of the sample farmers are illiterate, about 25% of them can read and write or had average education, and 40% of them had high education.

It turns out that about 70% of the sample farmers are planting wheat, and about 30% of the sample farmers planting maize, rice, and other crops in equal proportions for each of them, respectively .. As it turns out that about 73% of family members are working in their own land, and about 27% of workers in the lands are hired from outside the family. It also turns out that the proportion of people in the sample that are infected with diseases about 80%, while 20% of them are healthy.

Table (1) common diseases of the individuals of the sample

Statement	Number of individuals	%
Schistosomiasis	30	20
Virus (HCV)	39	26
Kidney disease	23	15
Others	30	20
Healthy	28	19
Total	150	100

Source: Calculated from questionnaires of the sample of the study.

The study showed that the most common diseases among people in the sample are represented in schistosomiasis, virus (HCV), and kidney disease and the people who are infected with the diseases are estimated as about 20%, 26%, 15%, respectively, as it is shown in Table (1). Asking people in the sample whether they are cured or not, it was found that about 40% of people that have schistosomiasis have been cured and that about 40% of them have not been recovered from the disease by taking medication at the first time, but times of taking medication ranged from 3 to 6 times and that is due continuation of swimming in infected water after taking medication. Schistosomiasis is still the major chronic disease for the Egyptians; there are still more than 18 million patients that were infected by schistosomiasis in Egypt, not to mention the other millions who were infected by complications resulting from schistosomiasis. It is worthy mentioning that eliminating the root of schistosomiasis in Egypt is almost pure fiction, where it exists in the land where the farmer is working and in the canals, water channels and banks. Statistics have recorded that about 10% of patients who are infected with schistosomiasis has Virus (C). The problem is that most of the patients with schistosomiasis are not patients can be treated easily and cut the road to the complications of the disease, but they are patients living with chronic diseases and are exhausted by the complications of schistosomiasis. As for the

farmers in the sample who are infected by infected Virus (C), the study showed that about 50% of people living with HIV are still taking treatment and getting better, while about 20% of them thought that there was no point in treatment and the rest is still in the initial stages of treatment, while people who were infected by kidney failure need dialysis 3 times a week and it is a process stressful physically and financially, so most of them are treated at the expense of the state while 20% who were infected by other diseases, heart diseases, bone infections and diseases of the nose and ear were relieved from these diseases by proportion of nearly 100%, 90%, and about 10% improved with treatment. About 60% of people in the sample are treated in the health insurance hospitals, about 10% are treated in each of the health units and private hospitals, and about 20% are treated in private clinics. Asking people in the sample about the reason for low percentage of those who are treated in the health units, it was revealed that these units are not eligible for treatment especially for patients with kidney failure as that they might be embarrassed from going to health units so they go to hospitals, and private clinics especially those who could not have treatment at the expense of the state.

As for the management of medical expenses for farmers in the sample, it has been shown in Table (2) that about 70% of people in the sample are treated at the expense of the state and about 30% of people in the sample are treated at their own expense. The total number of citizens who have been treated at the state expense inside has reached about 1198 million people in (2011), with an increase that is estimated as about 1226% from 1996 and the cost of the treatment reached about 2059 million pounds, with an increase of approximately 804% with an average cost per patient of about 1719 pounds (2011). The number of patients that are infected with internal diseases about 864 314 patients about 72.1% and patients with liver and interferon problem represent about 8%, or about 69 145 patients with a total treatment costs amounted to about 207 435 thousand pounds as patients of urinary tract and kidney failure are about 68 737 patients about 5.7% of the total number of patients who are being treated at the expense of the state and the total costs of treatment amounted to about 568 655 thousand pounds with an average cost of treatment per patient of about 7000 pounds.

Table (2) expenses of treatment of the individuals of the sample

Statement	Number of individuals	%
At the expense of the state	105	70
At the expense of the patient	45	30
Total	150	100

Source: Calculated from questionnaires of the sample of the study.

Taking into account that a large proportion of them do not continue in taking the medication because of the high costs, The costs of treatment monthly for those who are treated at their own expense about 100 pounds per month for non-endemic diseases which are beyond thousands of patients with kidney failure and virus (HCV), where the patient needs treatment course that consists of 48 interferon injections which is about an injection a week for 48 weeks and the treatment continues for about a year in addition to three injections against B virus and the necessary examinations and the cost of this injection is about 277 pounds per subject for treatment at the expense of the state or following the health insurance and up to about 1300-1400 pounds for those who are not subjects to treatment at the expense of the state or do not have health insurance, as well as three injections against HIV (B) in addition to necessary examinations costs. Asking about how to manage the expenses of treatment at their own expense, it turns out that about 20% of people in the sample have other sources for their income other than agriculture. Some of them are microbus drivers, some sell fish and some of them are working in plumbing, electricity or have certain properties. In spite of those acts, they can not cover the costs of treatment and asking about the reasons for treatment at their own expense, most of them answered that this was because the discovery of the disease suddenly did not allow them to proceed in treatment procedures at the expense of the state or because of the length and complexity of the procedures for obtaining the necessary approvals for treatment at the expense of the state and some rich people from them answered that they do not trust the treatment of government. The study found that the incidence of HIV (C) for those over the age of fifty have been by injection, which was used to treat schistosomiasis, where they used one injection for all members of the village, before the spread of injection which is used for one-time, as well as by wrong habits such as tattoo, circumcision, as well as the spread of the virus through shaving, cutting nails and finally a sponge bath that is used among the patient and family members. It has been shown that HIV(C) infection has reached about 180 thousand people annually of which, about 70% of them through blood transfusion and the deaths of about 140 thousand cases per year and the number of people who are infected in Egypt is about 22% of the Egyptian people.

As for the non-endemic diseases, it has been shown that about 80% of people in the sample are treated in the centers of government and about 20% in special centers.

Table (3) going down in the canal for bathing

Statement	Number of individuals	%
Keep going down	60	46
Stop going down	90	60
Total	150	100

Source: Calculated from questionnaires of the sample of the study.

The bathing in the canal is considered one of the most important bad habits that help not to cure from these endemic diseases as it is shown in Table No. (3). About 60% of people in the sample did not go down in the canal for bathing while about 40% of people in the sample lasted in bathing in the canal. About the extent of farmers' awareness of the seriousness of going down in the canal, it has been shown that about 50% of people in the sample taught their children not to go down in the canal for bathing and about 50% did not pay attention to their children's education. Meanwhile about the continuity of taking medication, nearly 60% of people in the sample go on taking medication, while approximately 40% of people in the sample do not keep taking the medication. About 90% of people in the sample have confirmed the existence of health units in the village, while 10% admitted that there are no health units. In terms of free treatment, it has been shown that about 70% of people in the sample are treated free of charge at health units or with paying cheap fee for non-endemic diseases while 30% of people in the sample pay the cost of treatment.

Table (4) the rate of curing from endemic diseases

Disease	% Cure Rate	No Cure	% The degree of Cure Full	Improving
Schistosomiasis	40	60	40	60
Virus (C)	50	50	--	50
Others	100	--	90	10

Source: Calculated from questionnaires of the sample of the study.

Asking people in the sample whether they are cured or not, it was found that about 40% of people that have schistosomiasis have good response for the treatment cured and that about 40% of them have been recovered from the disease and about 60% are improving by taking medication, but times of taking medication ranged from 3 to 6 times, but the rest has not been cured table no.(4) and that may be due to continuation of swimming in infected water after taking medication as it was mentioned before. About 50% of people living with virus(C) have not been cured and getting better, while about 20% of them thought that there was no point in treatment and the rest is still in the initial stages of treatment, while people who were infected by kidney failure need dialysis 3 times a week and it is a process stressful physically and financially, so most of them are treated at the expense of the state while 20% who were infected by other diseases, heart diseases, bone infections and diseases of the nose and ear were relieved from these diseases by proportion of nearly about 90%, and about 10% improved with treatment.

Table (5) the effects of the disease on the performance of the sample farmers
(Comparison between the number of working hours before and after the disease)

Working hours before the disease (6-12) hours			Working hours after the disease (2-8) hours		
(6-8)	(8-10)	(10-12)	(2-4)	(4-6)	(6-8)
%45	%35	%20	%50	%30	%20

Source: Calculated from questionnaires of the sample of the study.

About the effects of these endemic diseases on the efficiency of agricultural worker, (Table 5) has shown that all people of the sample were not able to exercise their work as before the disease has appeared in the low daily working hours, which fell to about 50% among people who were infected with these diseases and the number of daily working hours before the disease is ranging from about 6-12 hours a day, where about 45% of people of the sample said their working hours ranged between 6-8 hours per day, also about 35% of people of the sample said their working hours ranged between 8-10 hours and about 20% of the individuals are working an average of 10-12 hours a day. As it is shown in the table, the number of hours after the disease are reduced to between 2- 8 hours a day, it has been found that about 50% of people with these diseases have decreased their hours of work in the field to only about 2-4 hours a day, while about 30% others decreased their working hours to about 4.6 hours per day, while about 20% of people of the sample people who are infected with schistosomiasis and virus (HCV) decreased the number of working hours to about 6-8 hours a day.

As for people with kidney failure, they have lost most of their ability to work after the disease and thus 80% of patients need agricultural workers to help them in harvesting, transplanting rice, cultivation and servicing the land. The worker's wage a day is ranging between 35-50 pounds, and the estimated number of workers who are hired between 1-25 workers according to health condition of the owner of the land and the size of the acquisition, according to agricultural processes needed by the crop or the land and it is considered a significant burden financially incurred by the farmer in addition to other charges, in particular the costs of treatment for those who are treated at their own expense and to ask whether one of the workers who are hired infected with any of the endemic diseases, it has been shown that the percentage of infection, amounted to about 30% and about 70% are healthy.

About 30% of the people of the sample have expressed their need for about 5-10 workers to help them to cultivate their land, while about 30% have expressed their need for about 10-15 workers, and about 10% have expressed their need for workers up to about 15-20 workers. Similarly about 10% expressed their need for workers up to about 20-25 workers a day with the knowledge that nearly 80% of people of the sample's basic income is from agriculture, and this has led to lower income for about 50% of them after infection and bearing the wages of new employment and bearing some of the costs of treatment.

It has been shown that the effects of infection with these endemic diseases have emerged among about 30% of the members of sample in the image of general weakness and slimness, while 60% of the members of sample have a sharp decline in activity and blurred and are not able to do any effort while 10% have only felt tired, exhausted and a desire to rest and sleep. It was natural that those symptoms lead to reducing the number of working hours to about 2-8 hours a day.

The development of the wage of the agricultural worker during the period (1995-2012):

It is worth mentioning that the daily wage of the agricultural worker has risen over recent years as the wage of the worker during the period (1995-2000) was ranging between 10-15 pounds for his work with an average of about 10-12 hours per day, but the wage increased during the period (2000 - 2005) to reach about 20-25 pounds per day and decreased the number of working hours to about 7 hours a day and at the present the worker's wage has increased to about 50 pounds for his work for five hours a day just as well as the commitment of the owner of the land to provide lunches for the duration of his work and the meal must contain animal protein either red or white meat or fish, and the worker also requires a number of individuals who work with him in the land, for example, if the work is the cultivation of wheat crop, the agricultural process requires about 7-8 individuals and there are only 5 members or less, the worker will refrain from work and the owner of the land has to negotiate with him on a new wage in exchange for his harder effort, that makes many land owners are rethinking well before planting, and some are thinking to convert the land into buildings to get a return, and others are thinking of selling the land or renting it.

The sample of the study shows that agricultural processes that require a large number of workers are harvesting as it needs about 30% of the agricultural labor, but transplanting rice needs about 20% of employment, while cultivating the land and serving it need about 10% of the agricultural labor. About 60% of people of the sample are satisfied with the quality of health services that are provided by health units and about 40% are not satisfied with these services and justified it by not having specialized doctors in the treatment of these diseases, and despite the existence of devices and many modern treatment units, there are considered custody of the doctors and thus can not be used for the fear of the occurrence of faults that may be paid by the doctor, and therefore these devices are not used in the end to serve the patients when they need them.

The economic impacts of farmers' infection by endemic diseases on the Egyptian national income:

The number of agricultural labor in Egypt is about 7 million workers, of whom about 4.2 million workers are infected with endemic diseases representing about 60% of the total volume of employment. It has been shown from the questionnaire of field sample that the daily wage of the worker is approximately fifty pounds for working for 5 hours a day, so the wage per hour for a worker is about 10 pounds (which is the opportunity cost).

It is clear from Table (5) that about 50% of people decreased their working hours from about 7 hours to about 3 hours and about 30% of people of the sample decreased the number of hours of work from about 9 hours to about 5 hours a day, the remaining 20% of people of the sample have decreased the number of their working hours to about 7 hours instead of 11 hours and this means that the average number of hours, which fell after infection is about 4 hours per day per worker and thus the national economy has a loss of about 61.4 billion pounds a year, not to mention the state budget expenses of treatment of the citizens with endemic diseases inside the country which reached about 590 million

pounds in 2011, unlike what the farmer pays for the new workers, who are hired to work in the land and the cost of meals provided by the farmer in addition to the economic loss resulting from infection of kidney failure which makes the worker lose his ability to work finally.

The most important results of the study are:

-The most common diseases in the sample are schistosomiasis by about 20%,Hepatitis C by about 26%, and kidney diseases by about 15%.

-As it is shown in the study, about 50% of people that were infected by the Hepatitis C is still taking treatment and getting better, while 20% thought that there was no point in treatment and the rest is still in the initial stages of treatment, while people who were infected by kidney failure need dialysis 3 times a week.

-It is obvious that about 70% of people of the sample are treated at the expense of the state and about 30% of the sample is treated at their own expense.

-The patient that is infected by Hepatitis C requires treatment course that consists of 48 interferon injections which is about an injection a week for 48 weeks and the treatment continues for about a year in addition to three injections against B virus and the necessary examinations and the cost of this injection is about 277 pounds per subject for treatment at the expense of the state or following the health insurance and up to about 1300-1400 pounds for those who are not subjects to treatment at the expense of the state or do not have health insurance.

- It was found that about 40% of people that have schistosomiasis have been cured and that about 40% of them have not been recovered from the disease by taking medication at the first time, but times of taking medication ranged from 3 to 6 times and that is due continuation of swimming in infected water after taking medication. The study found that about 50% of people that are infected by C Virus is still taking treatment and getting better, while about 20% of those who are not cured thought that there was no point in treatment and the remaining percentage is about 30% are still in the first stages of treatment.

- It was found that all people in the sample who were infected by endemic diseases were not able to do their work as before the infection and it has appeared in the reduction of daily working hours, which fell in many cases to about 50%.

The study found many the recommendations and of the most important ones are:

- Direct awareness of farmers through media and agricultural advisors that they should stay away from unhealthy habits such as tattoos, cupping and female genital mutilation, which are a major source of infection, and avoid the use of toothbrushes and razors of others, as well as not using injection for more than one person and awareness of farmers not to go down or their animals for bathing in the canals, as well as not washing pots and not to pee in the canals, and wearing shoes with a neck while working in the fields, especially rice fields.

- Working on the arrival of clean drinking water and extension of sewage for each house in the Egyptian countryside and slums.

- Providing, health services and effective treatment for free or with subsidized prices especially for farmers who are not able to pay the expenses of treatment by the Ministry of Health and Population, extending health insurance to include the majority of the Egyptian people. and working for spreading health centers and treatment centers and providing them with the latest treatment means, especially in the Egyptian countryside as well as increasing the salaries of doctors, nursing staff, technicians and all workers in the health field to improve their living conditions, which reflects its impact on dealing with their patients.

- Working on providing health units with the latest devices with training doctors to use them with a system for repairing them and doctors are not responsible for those faults and not to discount from their salaries, which drives them to not use the machines, which does not serve the citizen health.

Acknowledgment

The authors declare that they have no conflicts of interest in the research.

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