

ECONOMIC BURDEN OF KIDNEY DISEASE IN CHENNAI CITY, TAMIL NADU

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ABSTRACT

Kidney Disease is a big problem in the third world countries because of the high costs of treatment. The need of the hour is to have more and more kidney disease detection clinics, there is a need to develop a cost-effective strategy for the treatment and take up steps to arrest the deaths due to kidney failure. Lack of awareness and early detection are not only the reasons for high incidence of death from kidney failure, but also due to shortage of dialysis centres, the unbearable lofty cost of transplant surgery and new strict government regulations regarding organ donation. Therefore, it is essential to develop preventive, precautionary measures to control and it is worthwhile to investigate for not getting treatment at the right time. The aim of this study was to estimate the costs of medical care among patients.

Keywords: *Kidney disease, Dialysis, Transplantation, Economic Burden*

INTRODUCTION: Dialysis and transplantation is a lifesaving method for kidney disease. In spite of this important fact, dialysis is not available in many parts of the State. The economic costs to society arise as a result of very less allocation of funds by the government for kidney disease. The lack of proper concern causes affected people in these areas leading early death. Patients and their family invest a huge amount of money in medical expenses so there is an out flux of income for the medical expenses, which affect economic condition of the family. On supply side the private hospitals are equipped to handle the patients suffering from kidney disease due to less investment by government. On demand side, kidney patients are growing in large number to acquire treatment.

In economic terms, the cost related to kidney disease is broad. Costs related to kidney disease medical treatments, the earnings lost to individuals, loss of jobs and so on. Other less well known costs include the opportunity costs to individuals with kidney disease and their families who sacrifice other activities because they have to devote money, time cater to the demand of relative living with kidney disease.

As per the report jointly prepared by the World Health Organization and the World Economic Forum (2016), India will incur an accumulated loss of \$236.6 billion by end of 2015 on account of unhealthy lifestyles and faulty diet. The resultant chronic disease like heart disease, kidney disease, stroke, cancer, diabetes and respiratory infections which are ailments of long duration and slow progression will severely affect people's earnings. The income loss to Indians because of these diseases, which was \$8.7 billion in 2005, rise by \$ 54 billion in 2015 and is projected to rise to \$4.58 trillion in 2030 (WHO).

A study conducted by the Harvard School of Public Health, 2012 stated that the economic losses due to non-communicable disease will be close to \$6.2 trillion. It should be noted that this figure is equivalent to nearly nine times the total health expenditure during the previous 19 years of \$710 billion. Thus, India's rapid economic growth could be slowed by a sharp rise in the prevalence of non-communicable disease and the successful information technology industry is likely to be the hardest hit. In the absence of State support for dialysis except in a limited way in States like Tamil Nadu and Andhra Pradesh, the cost of therapy has to be affordable by the patient's family. The economic status of the majority of patients excludes the possibility of any form of long term therapy resulting in poor outcomes. Within 3 months, more than 60 per cent of patients who are in Hemodialysis drop out due to lack of ability to afford long-term treatment and only a small minority remains on dialysis for 24 months or more.

OBJECTIVES OF THE STUDY

1. To study the socio economic conditions of the kidney patients in Tamil Nadu
2. To find out the impact of kidney treatment among kidney patients.

HYPOTHESES OF THE STUDY

1. There is no association between stages at which kidney disease is diagnosed and cost factors in thousands of kidney patients
2. There is no significant difference among mean ranks towards the problems of kidney patients

METHODOLOGY

Both primary data and secondary data has used. A total of 550 samples were drawn randomly from the selected areas of Chennai city suffering from Kidney ailment patients. The researcher adopted convenient and purposive sampling method and most of the interviews were conducted to both inpatients and outpatients.

TABLE 1.1 NUMBERS OF PEOPLE WAITING FOR KIDNEY TRANSPLANTS IN TAMIL NADU(2018)

SI No	Blood Group	Waiting for transplant
1	Group 'O'	3,125
2	Group 'A'	1,719
3	Group 'B'	2,704
4	Group 'AB'	504
Total		8052

SI No	Blood Group	Waiting period
1	Group 'O'	10-12 months
2	Group 'A'	More than a Year
3	Group 'B'	More than a Year
4	Group 'AB'	Least because donors are usually family members

Source: Organ Transplant Registry, Tamil Nadu, 2018

The above table 1.1 shows the number of patients waiting for kidney transplants in Tamil Nadu till June 2018. It shows that number of people waiting for kidney transplantation. Among this blood group O has highest number of kidney patients waiting for transplant and follow by blood group B. As the waiting period is less for O group due to certain medical complication so priority is given more on blood group O compare to other blood group.

TABLE 1.2 ZONE WISE STAGE OF KIDNEY DISEASE

Stages	East	North	South	West	Total
Stage I	28 (0.38%)	560 (3.63%)	324 (1.39%)	243 (1.70%)	155 (1.91%)
Stage II	210 (2.85%)	904 (5.86%)	850 (3.65%)	578 (4.04%)	2542 (4.21%)
Stage III	1536 (20.86%)	3081 (19.97%)	4792 (20.58%)	2506 (17.51%)	11915 (19.73%)
Stage IV	1507 (20.46%)	3838 (24.88%)	5615 (24.11%)	3294 (23.02%)	14254 (23.60%)
Stage V	4083 (55.45%)	7046 (45.67%)	11706 (50.27%)	7690 (53.73%)	30525 (50.55%)
Total	7364	15429	23287	14311	60391

Source: Indian Society of Nephrology, 2016

The above table 1.2 shows the zone wise stage of Kidney Disease. It has divided into North, South, East and West. It is identified that South has the highest number of kidney disease i.e 23287 followed by North India that is 15429. There is a high number of Stage V infected patients compare to other stages.

Null hypothesis:

There is no association between stages at which kidney disease is diagnosed and cost factors in thousands of kidney patients

TABLE 1.3 Chi square test for association between stages at which kidney disease is diagnosed and cost factors in thousands of kidney patients

Stage at diagnosed as a Kidney disease	Cost factors in Thousands					Total	Chi square value	P value
	Below 50000	50000-100000	100000-500000	500000-1000000	Above 1000000			
Upto Stage III	3 (6.0) [1.4]	27 (54.0) [16.8]	13 (26.0) [23.6]	3 (6.0) [6.4]	4 (8.0) [5.0]	50	104.089	<0.001**
Stage IV	97 (48.7) [46.9]	72 (36.2) [44.7]	18 (9.0) [32.7]	4 (2.0) [8.5]	8 (4.0) [10.0]	199		
Stage V	107 (35.5) [51.7]	62 (20.6) [38.5]	24 (8.0) [43.6]	40 (13.3) [85.1]	68 (22.6) [85.0]	301		
Total	207	161	55	47	80	550		

Source: Primary Data

Note: 1. The value within () refers to Row percentage

2. The value within [] refers to Column percentage

3. **Denotes significance at 1 % level

From table 1.3, it is observed that the Chi-square statistic is 104.089. Since P value is less than 0.01, the null hypothesis is rejected at 1 percent level of significance. Hence, concluded that there is association between stages diagnosed as a kidney disease and cost factors in thousands of kidney patients. Based on the row percentage, Stage diagnosed as a kidney patients up to stage III, 6.0 percent are below 50000, 54.0 percent are 50000-100000, 26.0 percent are 100000-500000, 6.0 percent are 500000-1000000, 8.0 percent are above 1000000. Stage diagnosed at stage IV, 48.7 percent are below 50000, 36.2 percent are 50000-100000, 9.0 percent are 100000-500000, 2.0 percent are 500000-1000000, 4.0 percent are above 1000000. Stage diagnosed at stage V, 35.5 percent are below 50000, 20.6 percent are 50000-100000, 8.0 percent are 100000-500000, 13.3 percent are 500000-1000000, 22.6 percent are above 1000000. From the above analysis it is found that as the stage goes higher the cost factors involved also increase as the number of dialysis should be done, medicines, certain lab test and number of complications. Therefore, it is statistically proved that there exists a significant relationship between the stages diagnosed and cost factors in thousands of kidney patients.

Null hypothesis:

There is no significant difference among mean ranks towards problems of kidney patients.

TABLE 1.4 Friedman test for significant difference among mean ranks towards problems of kidney patients

Factors of problems of kidney patients	Mean Rank	Chi square value	P value
Financial Constraints	3.74	480.436	<0.001**
Don't think a cured possible	3.43		
Not able to bear the pain	2.85		
Psychological problems	2.90		
Family problems	2.08		

Source: Primary Data

Note: **denotes significant at 1% level

Table 1.4 shows that P value is less than 0.01, the null hypothesis is rejected at 1 per cent level of significance among mean towards factors of problems of kidney patients. Hence there is significant difference among mean ranks towards factors of problems of kidney patients. Based on mean rank financial constraints (3.74) is the major problem of kidney patients, is followed by the thought of the impossibility of curing the disease (3.43), psychological problems (2.90), inability to bear the pain (2.85) and family problems (2.08). As financial constraints are the main problems that people are face, many of the patients belonging to low and middle income group where hardly they don't have the money to invest for this high cost of treatment where every week they have to spend nearly Rs 7000-8000/-which becomes a burden to their family.

CONCLUSION:

It is the time to make aware to the large number of the society as to take extra precaution and preventive measures and as to help the person who are indeed in need of organs to lead a normal life like us. Kidney transplantation is superior to dialysis in terms of survival, quality of life and cost of therapy, and permits thousands of people with end-stage organ failure to enjoy a relatively normal life. It is the most viable long-term renal replacement option in large parts of the developing world including India. An overwhelming majority of kidneys come from living donors, as the deceased donor programme is still in infancy and faces multiple barriers. There is a lack of supply of organs and very high cost of treatment especially for the middle class section and low class section of the population. The deceased organ donation rates in India which vary in different parts have been estimated to be 0.08 per million populations per year. It has been suggested that sustained industrial growth, infrastructure support and higher rates of literacy in the southern and western regions of India are supportive to the growth of deceased donor programmes. Awareness programmes, personal beliefs and experiences of prior contact influence individual and societal attitudes and awareness regarding organ donation. In India, consent of the next of kin is mandatory before organs can be recovered from a deceased donor.

There is a dire need to take up certain steps to improve the number of organ donation and transplant centres all over our country to fight against the deadliest kidney disease and also the solution for reducing economic burden of the society.

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