

THE ECONOMIC BURDEN AND HEALTH PROBLEMS OF DIABETES AMONG WOMEN IN KANYAKUMARI DISTRICT, TAMILNADU

S.Vimal Dolli * and T.R. Jeyaraaj**

This paper analyse the economic burden and health problems of diabetes among women in Kanyakumari district, Tamilnadu. Diabetes represents a spectrum of metabolic disorders, which has become a major health challenge worldwide. Due to aging, accelerated population growth, urbanization and high prevalence of obesity and inactive lifestyle, the number of people with diabetes is increasing globally at a rapid speed. The present study find out that, majority of the samples have diabetes during the age group of 40 – 50. The majority of the income is spent for food, education and medicine. 84.3 per cent of the samples have tiredness/weakness due to diabetes, 64.3 per cent of them have pains in legs/joints, 40 per cent of the samples have loss of vision, 25.7 per cent of them suffer from frequent urination, 17.1 per cent of the samples have cardiac problems, 21.4 per cent of them have hypertension and 10 percent of them have delayed wound healing. Allopathic medicine has higher share of 65 per cent of the medical cost, while Homeopathy and Siddha (41.1 per cent and 40.2 per cent). Siddha medicine has high (17 per cent) doctor fees, compared to the Allopathy (12.8 per cent) and Homeopathy (16.2 per cent). Totally Allopathy samples (₹ 461/-) spend more than Homeopathy (₹ 209/-) and Siddha (₹ 259/-).

Key words: Health, Diabetes, Economic Stress

INTRODUCTION

Diabetes represents a spectrum of metabolic disorders, which has become a major health challenge worldwide. Due to aging, accelerated population growth, urbanization and high prevalence of obesity and inactive lifestyle, the number of people with diabetes is increasing globally at a rapid speed. International Diabetes Federation (2007) estimated that, the prevalence of diabetes for all-age groups world wide was 5.1% in 2003. It is increased to 6.0% in 2007. It is also expected to increase 7.0% of total population in 2025. The prevalence of diabetes is higher in man than women, but there are more women with diabetes than men. The five countries with the largest numbers of people with diabetes are India (40.9 million), China (39.8 million), the United States (19.2 million), Russia (9.6 million) and Germany (7.4 million).

In developing countries, the majority of people with diabetes are in the 45 to 64 year age range. In contrast, the majority of people with diabetes in developed countries are >64 years of age (Wild et al, 2004). The largest increases in the diabetic population in developing countries are projected to be in the most economically productive age groups (Mohan. et al, 2004). In a developing country, the direct cost of diabetes healthcare is very high for many people. A person with diabetes faces higher costs than those of a healthy individual because of more frequent medical visits, the need to purchase supplies/medicines and the greater likelihood of being admitted to hospital. So, a person with diabetes incurs medical costs that are 2 to 3 times higher than those of a person without diabetes (Barcelo et al, 2003). Objective of the paper is to find out the treatment cost of diabetic patients and find out the health problems of diabetic patients.

DEATH AND DISABILITY

Diabetes is expected to cause 3.8 million deaths worldwide in 2007, roughly 6 % of total world mortality, about the same as HIV/AIDS and malaria combined. Using World Health Organization (WHO) figures on years of life lost per person dying of diabetes, this translates into more than 25 million years

*Ph.D Research Scholar, **Professor, Department of Economics, Annamalai University.

of lost life each year. The International Diabetes Federation (IDF) estimates that the equivalent of an additional 23 million years of life are lost each year to the disability and reduced quality of life caused by diabetes complications.

Losses due to mortality and disability are particularly high in poor and middle-income countries, where people with diabetes are unlikely to get the treatments that are proven to prevent the disease's killing and disabling complications. For example, in Sub-Saharan Africa, the mortality from diabetes is four times higher than the world average.

FAMILY ECONOMIC STRESS FROM DIABETES

In the poorest countries, people living with diabetes and their families bear almost the entire cost of whatever medical care they can afford. In India, for example, the poorest people with diabetes spend an average of 25 % of their income on private care. Where average incomes are higher, as in Latin America and the Caribbean, families still pay 40-60 % of diabetes care costs out of their own pockets, which strictly limits the amount of care that they can get. Blood sugar regulating drugs alone are reported to account for about half the expense. Little or no money is available to pay for the Aspirin, ACEI-inhibitors, statins, and other cheap generic drugs that could prevent renal failure, heart attacks, strokes, and amputations.

METHODOLOGY

For this micro-level study study is based on the primary data collected from a sample in Kurusadi village comprising 35 allopathy, 25 homeopathy and 10 siddha diabetic respondents. This village is located in Kanyakumari district. Kanyakumari district is placed in the southernmost part of Tamil Nadu state. There are four taluks in this district, namely, Kalkulam, Vilavankode, Agastheswaram, and Tovalai. This village is located in Agstheswaram Taluk of Kanyakumari district. A suitable questionnaire is constructed to collect the primary data. The proportionate stratified random sample method is adopted for this micro-level study.

RESULTS AND DISCUSSIONS

Table - 1: Age at Onset of Diabetes in the Sample Diabetics

| Age (in years) | Systems of Medicine | | | Overall n=70 |
|-------------------|---------------------|--------------------|----------------|-----------------|
| | Allopathy n=35 | Homeopathy n=25 | Siddha n=10 | |
| Below 40 | 7 (20) | 5 (20) | - | 12 (17.1) |
| 40 – 50 | 12 (34.3) | 15 (60.0) | 8 (80.0) | 35 (50.0) |
| 51 – 60 | 16 (45.7) | 4 (16.0) | 2 (20.0) | 22 (31.4) |
| Above 60 | - | 1 (4.0) | - | 1 (1.4) |
| Total | 35 (100) | 25 (100) | 10 (100) | 70 (100) |

Source: Computed

Note: Figures in parentheses denote percentages to column total.

Table 1 shows the age at onset of sample diabetics by village-wise. 50 per cent of the samples have diabetes in the age group of 40-50 years. 31.4 per cent of the samples have diabetes in the age group of 51-60 years. 17.1 per cent of them have diabetes in the age group below 40 years and 1.4 per cent of them have diabetes above 60 years. Majority of the samples have diabetes during the age group of 40 – 50.

Table - 2 : Average Annual Household Income of the Sample Diabetics

| Income (in ₹) | Systems of Medicine | | | Overall n=70 |
|------------------------|---------------------|--------------------|-----------------|-----------------|
| | Allopathy n=35 | Homeopathy n=25 | Siddha n=10 | |
| Agriculture Income | 14980 (31.6) | 14464 (27.7) | 2500 (10.8) | 13013 (28.5) |
| Non-Agriculture Income | 32429 (68.4) | 37840 (72.3) | 20600 (89.2) | 32671 (71.5) |
| Total | 47409 (100) | 52304 (100) | 23100 (100) | 45684 (100) |

Source: Computed

Note: Figures in parentheses denote percentages to column total.

Table 2 shows the average annual household income of the samples by village-wise. Income is considered as one of the indicators of economic status and standard of living of the sample respondents. Income is divided in to agricultural income and non-agricultural income. Agricultural income includes income from crop, milk, trees and fruits. Non-agricultural income includes income from rent, interest and main occupation. Samples get 71.5 per cent from non-agricultural income, and 28.5 percent income from agriculture.

Table - 3 : Average Household Expenditure of the Sample Diabetics (per month)

| Expenditure (in ₹) | Systems of Medicine | | | Overall n=70 |
|-------------------------------|---------------------|--------------------|----------------|-----------------|
| | Allopathy n=35 | Homeopathy n=25 | Siddha n=10 | |
| Food | 1124 (38.4) | 1239 (40.7) | 1158 (49.3) | 1170 (40.6) |
| Fuel and Lighting | 234 (8.0) | 238 (7.8) | 220 (9.4) | 234 (8.1) |
| Clothing | 150 (5.1) | 150 (4.9) | 130 (5.5) | 147 (5.1) |
| Cosmetics | 26 (0.9) | 20 (0.7) | 58 (2.5) | 29 (1.0) |
| Education | 436 (14.9) | 565 (18.6) | 50 (2.1) | 427 (14.8) |
| Medical | 411 (14.1) | 396 (13.0) | 284 (12.1) | 388 (13.4) |
| Travel | 237 (8.1) | 192 (6.3) | 136 (5.8) | 206 (7.2) |
| Telephone/mobile Charges | 138 (4.7) | 100 (3.3) | 190 (8.1) | 132 (4.6) |
| Recreation | 93 (3.2) | 62 (2.1) | 36 (1.5) | 74 (2.6) |
| Social and Religious Expenses | 76 (2.6) | 78 (2.6) | 88 (3.7) | 78 (2.7) |
| Total | 2924 (100) | 3040 (100) | 2349 (100) | 2883 (100) |

Source: Computed

Note: Figures in parentheses denote percentages to column total.

Table 3 indicates the average annual household expenditure of the sample diabetics by village-wise. To assess the expenditure pattern, the following items are included viz., food, fuel and lighting, clothing, cosmetics, education, medical, recreation, travel, telephone/mobile charges, recreation, social and religious expenses. Food is considered as an important item as it shares the maximum of 40.6 per cent of their expenditure. Education expenditure is 14.8 per cent, medical expenditure is 13.4 per cent, fuel and lighting expenditure is 8.1 per cent, travel expenditure is 7.2 per cent, clothing expenditure is 5.1 per cent, telephone/mobile charges expenditure is 4.6 per cent, recreation expenditure is 2.6 per cent, social and religious expenditure is 2.7 per cent and cosmetic expenditure is 1 per cent. The majority of the income is spent for food, education and medicine.

Table 4 shows the health problems of the sample diabetics. Health problems include, tiredness/weakness, pains in legs/joints, loss of vision, frequent urination, cardiac problems, hypertension, and delayed wound healing. 84.3 per cent of the samples have tiredness/weakness due to diabetes, 64.3 per cent of them have pains in legs/joints, 40 per cent of the samples have loss of vision, 25.7 per cent of them suffer from frequent urination, 17.1 per cent of the samples have cardiac problems, 21.4 per cent of them have hypertension and 10 percent of them have delayed wound healing.

Table - 4 : Health Problems of the Sample Diabetics

| Details | | Systems of Medicine | | | Overall n=70 |
|-----------------------|-----|---------------------|--------------------|----------------|-----------------|
| | | Allopathy n=35 | Homeopathy n=25 | Siddha n=10 | |
| Tiredness or weakness | Yes | 31 (88.6) | 18 (72.0) | 10 (100.0) | 59 (84.3) |
| | No | 9 (11.4) | 2 (28.0) | - | 11 (15.7) |
| Pain in legs/joints | Yes | 20 (57.1) | 15 (60.0) | 10 (100.0) | 45 (64.3) |
| | No | 15 (42.9) | 10 (40.0) | - | 25 (35.7) |
| Loss of vision | Yes | 16 (45.7) | 4 (16.0) | 8 (80.0) | 28 (40.0) |
| | No | 19 (54.3) | 21 (84.0) | 2 (20.0) | 42 (60.0) |
| Frequent urination | Yes | 10 (28.6) | 2 (8.0) | 6 (60.0) | 18 (25.7) |
| | No | 25 (71.4) | 23 (92.0) | 4 (40.0) | 52 (74.3) |
| Cardiac problems | Yes | 9 (11.4) | 3 (12.0) | 2 (20.0) | 12 (17.1) |
| | No | 31 (88.6) | 22 (88.0) | 8 (80.0) | 58 (81.9) |
| Hypertension | Yes | 5 (14.3) | 9 (36.0) | 1 (10.0) | 15 (21.4) |
| | No | 30 (85.7) | 16 (64.0) | 9 (90.0) | 55 (78.6) |
| Delayed wound healing | Yes | 5 (14.3) | 2 (8.0) | - | 7 (10.0) |
| | No | 30 (85.7) | 23 (92.0) | 10 (100.0) | 63 (90.0) |

Source: Computed, Note: Figures in parentheses denote percentages to column total.

Table 5 shows the cost structure of different systems of medicine. Allopathic medicine has higher share of 65 per cent of the medical cost, while Homeopathy and Siddha 41.1 per cent and 40.2 respectively. Siddha medicine has high (17 per cent) doctor fees, compared to the Allopathy (12.8 per cent) and Homeopathy (16.2 per cent). Totally Allopathy samples (₹ 461/-) spend more than Homeopathy (₹ 209/-) and Siddha (₹ 259/-).

The calculated value is F value is 17.14 which is higher than the Table value of 3.52 at 1% level of significance. Hence it shall be concluded that there are significant variations in the cost structure between the systems of medicine.

Table - 5 : Average Treatment Cost of the Sample Diabetics (per month)

| Costs (in ₹) | Systems of Medicine | | | Over all | F-value | P-value |
|------------------|---------------------|--------------------|----------------|---------------|---------|---------|
| | Allopathy n=35 | Homeopathy n=25 | Siddha n=10 | | | |
| Doctor Fees | 59 (12.8) | 34 (16.2) | 44 (17.0) | 48 (14.0) | 5.26 | 0.008 |
| Lab Fees | 35 (7.6) | 35 (16.6) | 37 (14.1) | 35 (10.3) | 0.04 | 0.961 |
| X-Ray/Scan | 13 (2.8) | - | - | 6 (1.9) | 1.00 | 0.373 |
| Cost of Medicine | 299 (65.0) | 86 (41.1) | 104 (40.2) | 195 (57.1) | 25.39 | 0.000 |
| Travel Expenses | 18 (3.8) | 17 (8.3) | 13 (5.0) | 17 (4.9) | 0.24 | 0.790 |
| Special Diet | 33 (7.2) | 31 (14.7) | 56 (21.7) | 35 (10.4) | 6.06 | 0.004 |
| Others | 4 (0.9) | 5 (2.2) | 5 (1.9) | 4 (1.3) | 0.12 | 0.890 |
| Total | 461 (100) | 209 (100) | 259 (100) | 342 (100) | 17.14 | 0.000 |

Source: Computed

CONCLUSION

Diabetes emerges rapidly in young people. So special interventions should be planned and implemented at schools and colleges to target children and adolescents in developing countries. Activities such as early screening for diabetes (aiming at early detection), and prompt and effective management of the disease, should be designed with the purpose of preventing and delaying the onset of complications. Efforts should also be made to delay the onset of the premature disabilities and the deaths associated with secondary complications of diabetes. Furthermore, improved standards of care and management of diabetes in the healthcare systems of developing countries would particularly help to ensure that all persons with diabetes have easier access to high-quality management of their disease at an affordable cost.

References

- Barcelo, Alberto et al., (2003) "The Cost of Diabetes in Latin America and the Caribbean." *Bulletin of the World Health Organization*, 81:19-27.
- Chodick, Gabriel et al., (2005) "The Direct Medical Cost of Diabetes in Israel." *The European Journal of Health Economics*, 6 (Jan): 166-171.
- Diabetes Atlas, Third Edition, (2007) *International Diabetes Federation*.
- Esteghamati, A. et al., (2009) "The Economic Costs of Diabetes: A Population-based Study in Tehran, Iran" *Diabetologia*, 52:1520–1527.
- King, Hilary, Ronald E. Aubert and William H. Herman. (1998) "Global Burden of Diabetes, 1995 – 2025: Prevalence, Numerical Estimates, and Projections." *Diabetes Care*, 21: 1414 – 1431.
- Fowler, Michel. J (2008) "Microvascular and Macrovascular Complications of Diabetes." *Clinical Diabetes*, 26: 77-82.
- Hogan, P, T. Dall, and P. Nikolov (2003) "Economic Costs of Diabetes in the US in 2002." *Diabetes Care*, 26: 917-932.
- Kapur, Anil et al., (2004) "Socio-Economic Determinants of the Cost of Diabetes in India." *Diabetes Voice*, 49 (Sep): 18-21.
- Mehta, Gen, Kashyap and S. Das (2009) "Diabetes Mellitus in India: The Modern Scourge." *Medical Journal Armed Forces India*, 65:50-54.
- Mohan, V and R. Pradeepa (2009) "Epidemiology of Diabetes in Different Regions of India." *Health Administrator*, 22: 1-18.
- Ramachandran, A, C. Snehalatha and Vijay Viswanathan (2002) "Burden of Type II Diabetes and its Complications – The Indian Scenario." *Current Science*, 83 (Dec): 1471-1476.
- Ramachandran, A. and C. Snehalatha (2009) "Current Scenario of Diabetes in India." *Journal of Diabetes*, 1:18-28.
- Shea, Laura and Michelle Owens-Gary (2009) "Diabetes and Depression in Older Women – Double the Risk, Double the Burden." *Diabetes Voice*, 54 (May): 8-11.
- Wild, Sarah et al., (2004) "Global Prevalence of Diabetes: Estimates for the Year 2000 and Projections for 2030." *Diabetes Care*, 27:1047–1053.