AN ECONOMIC IMPLICATION OF COMORBIDITY AND NON COMMUNICABLE DISEASES WITH SPECIAL REFERENCE TO SALEM DISTRICT

UGC CARE APPROVED

ABSTRACT

The current study examines the Economic implications of Non-Communicable Diseases with special reference to diabetes and hypertension in Salem District. A non-communicable disease is a medical situation or illness that is not caused by a communicable agent (non-infectious or non transmissible). Non-Communicable Diseases refers to chronic diseases which prevail for lengthy periods of time and develop unhurriedly. NCDs affect people in the age group of 35 to 64 and affect potentially productive people. The risk factors that lead to Non-communicable diseases are inactive lifestyle, unhealthy diet, smoking and alcohol consumption. Mortality due to communicable diseases has been declining, while that from Non-communicable diseases has been on the rise. The selected sample respondents are receiving medical treatment viz., Government Hospitals and Private Clinics in the first stage. The sample collected was through a stratified random sampling method. The total sample respondents were 280 respondents in the Salem district. A periodical health survey is needed to understand the current status of the non-communicable diseases.

Introduction

The current study examines the Economic implications of Non-Communicable Diseases with special reference to diabetes and hypertension in Salem District. A non-communicable disease is a medical situation or illness that is not caused by a communicable agent (non-infectious or non transmissible). Non-Communicable Diseases refer to chronic diseases which prevail for lengthy periods of time and develop unhurriedly. Sometimes, NCD diseases such as autoimmune diseases, heart diseases, stroke, cancers, diabetes, chronic kidney disease, osteoporosis, Alzheimer's disease, cataracts, and others are the leading cause of death worldwide. Chronic diseases need chronic care executive, as these diseases are time-consuming and exist for a lengthy period.

Review of Literature

Satyavani et al (2014) examines the direct expenditure related to chronic kidney disease along by Type-2 diabetic patients in India. In two years, the total expenditure for dialysis is high as compared to the patients who transplanted the kidney. The cost of treatment and economic burden is high due to diabetes and co-morbidities. Therefore, there should be improvement in medical technologies to decrease the financial commitment of the poor.

Mahajan et al (2012) assessed the knowledge, attitude, practice, risk factors and co-morbidities among patients with hypertension. Most patients with hypertension experience some co-morbidities. Poor health management and lack of awareness are the major reasons for their health issues. Therefore, health education is very important for people to overcome their health problems.

Long and Jack (2011) analyzed the co-morbidities of Diabetes and Hypertension. This problem leads to CVD such as stroke, kidney failure, and peripheral disease. In order to control multiple risk factors of diabetes and hypertension, primary and secondary preventive measures have to be taken. Besides, the patients must avoid consuming Alcohol, Tobacco and Smoking.

I. KOKILA
Ph.D Research Scholar
Department of Economics, Periyar University, Salem, Tamil Nadu, India.
Dr. A. SUGIRTHA RANI
Associate Professor
Department of Economics, Periyar University, Salem, Tamil Nadu, India.

Davila et al (2008) studied the co-morbidities of patients with hypertension admit to disaster department in Private Hospitals. The present study compares the characteristics of the patients, co-morbidities of hypertension and its symptoms. The study concludes by suggesting prevention programs to educate people about the symptoms and preventive measures.

Singh et al (2000) analysed the prevalence, control and strategies for preventing hypertension and stroke in developing countries in Asia. The present study collects data from the available literature and websites. There is a need for analyzing the risk factors and hypertension in Asia. The study suggests initiating programmes on preventive measures for controlling the prevalence of cardiovascular health disorders.

Statement of the Problem

The World Health Organization 2005 has defined NCDs as a disease of lengthy period and usually measured. They are the main causes of death and morbidity. NCDs affect people in the age group of 35 to 64 and affect potentially productive people. The risk factors that lead to Non-communicable diseases are inactive lifestyle, unhealthy diet, smoking and alcohol consumption. Mortality from communicable diseases has been declining, while that from Non-communicable diseases has been increasing. Comorbidity refers to two or additional disease that take place in one being at the same time. A number of diseases can coexist in one being by accident and there is no pathological involvement among them.

Research Method and Tools

Objectives

(i) To analyze the private cost structure of the treatment for diabetes, hypertension and their co-morbidities.

(ii) To identify the reasons for the choice of the system of medical treatment for diabetes and hypertension.

Sources of Data Collection:

This study requires both primary data and secondary data.

Study Design and Sample:

The selected respondents of the health care services, choice of medical treatment, direct and indirect cost of treatment and economic burden of hypertension and diabetes in Salem District. There are around 11 Public Hospitals, and 187 Private hospitals as the sources of healthcare services in Salem District. The selected sample respondents has been receiving medical treatment viz., Government Hospitals and Private Clinics in the first stage. The sample collected was through a stratified random sampling method. The total sample respondents were 280 respondents in the Salem district.

UGC CARE APPROVED

Study Period:

The data collected was from 2018-2019 using direct personal investigation.

Statistical Analysis

The collected data are summarized and tabulated to find out descriptive statistical measures like average and percentage Probit Model, Multi Linear Regression Model (MLRM) and T-Test are used to test the formulated hypotheses. The framed hypotheses analyse the system, cost of treatment and economic impact of diabetes and hypertension with personal variables, health variables and economic variables. Since the hypotheses are multi-dimensional in nature, MLRM and Probit Models are used for testing these hypotheses.

Result and Discussion

Table 1

Reasons for Taking Treatment in Government Hospitals

Details	Type of Disease		Overall
	Hypertension (n=140)	Diabetes (n=140)	(n=280)
Treatment in Government Hospital	70	70	140
	-50	-50	-50
Reasons for visiting Government Hospital			
a. Low Income	70 (50.0)	70 (50.0)	140 (50.0)
b. Free Treatment	44 (31.4)	42 (30.0)	86 (30.7)
c. Free Medicine	59 (42.1)	48 (34.3)	107 (38.2)
d. Other Facilities	59 (42.1)	48 (34.3)	107 (38.2)

Source: Primary Data

The respondents take treatments in government and private hospitals. The present study has interviewed the respondents who take treatment in government and private hospitals separately. Of the total surveyed, 50 per cent of respondents take treatments in Government and Private Hospitals respectively. Table 1 gives the reasons for taking treatment in Government Hospitals. The reasons specified by the respondents are low income (50%), free medicines and other facilities (38.2%) and 30.7 per cent for free treatment tops the survey. The Government Hospitals provide free treatment for poor people and the respondents having low income take treatment irrespective of hypertension and diabetes.

Table – 2
Reasons for Taking Treatment in Private Hospitals

Details	Type of Disease		Overall (n=280)
	Hyper tension (n=140)	Diabetes (n=140)	
Treatment in Private Hospital	70	70	140
	-50	-50	-50
Reasons for visiting Private Hospital			
a. Specialist Service	41 (29.3)	25 (17.9)	66 (23.6)
b. Specialty Clinic	49 (35.0)	42 (30.0)	91 (32.5)
c. Better Infrastructure	48 (34.3)	47 (33.6)	95 (33.9)
d. Better Counseling	51 (36.4)	49 (35.0)	100 (35.7)

Source: Primary Data

Table 2 substantiates the reasons of the respondents for taking treatment in private hospitals. The respondents take treatment in private hospitals for its better counselling (35.7%), better infrastructure (33.9%), speciality clinic (32.5%) and specialist service (23.6%). The hypertension and diabetes patients irrespective of their disease respond the same with a meagre variation. The respondents are particular about the counselling, infrastructure, clinic and service. But, the response of the patients who take treatment in government hospitals cite reasons as low income and free treatment and medicine.

Table -3
Choice of the System of Medical Treatment of the Respondents

UGC CARE APPROVED

Details	Type of Disease		Overall (n=280)
	Hyper tension (n=140)	Diabetes (n=140)	
Allopathic	123 (87.9)	129 (92.1)	252 (90.0)
Siddha	8 (5.7)	5 (3.6)	13 (4.6)
Ayurveda	6 (4.3)	6 (4.3)	12 (4.3)
Homeopathy	3 (2.1)	-	3 (1.1)

Source: Primary Data

The respondents follow various systems of medical treatment such as Allopathic, Siddha, Ayurveda and Homeopathy. Table 3 details the choice of the system of medical treatment. Of the various systems of medical treatment, 90 per cent of them take medical treatment under Allopathy whereas 10 per cent of them under Siddha (4.6%), Ayurveda (4.3%) and Homeopathy (1.1%). Among hypertension and diabetes patients, 92.1 per cent of diabetes follows Allopathic whereas 87.9 among hypertension patients follow allopathy. Around 4.3 percent of the diabetic and hypertension follow Ayurveda while 5.7 per cent and 3.6 percent of diabetic and Hypertension patients follow Siddha. The data shows that Allopathy type of treatment is mostly followed by both the diabetes and hypertension patients. The effectiveness of the Allopathic treatment and its immediate health recovery has made the respondents follow Allopathy as compared to other systems. At the same time, other systems such as Siddha, Homeopathy and Ayurveda take time in healing these health issues. Allopathy is purely based on chemicals and for this reason, the system is criticized. But, in spite of all its negative allegations, allopathy is widely followed and the data confirms the same.

Table 4
Reasons for Choice of System of Medical System by the Respondents

Details	System of Treatment				
	Allopathy (n=252)	Siddha (n=13)	Ayurveda (n=12)	Homeo pathy (n=3)	Overall (n=280)
Age of the Respondent	151 (59.9)	12 (92.3)	10 (83.3)	-	173 (61.8)
Belief on system of medicine	224 (88.9)	13 (100)	12 (100)	3 (100)	252 (90.0)
Knowledge on system of medicine	182 (72.2)	12 (92.3)	10 (83.3)	3 (100)	207 (73.9)
Awareness on system of medicine	131 (52.0)	-	2 (16.7)	-	133 (47.5)
Effectiveness of system of medicine	203 (80.6)	12 (92.3)	2 (16.7)	3 (100)	220 (78.6)
Duration of morbidity	147 (58.3)	12 (92.3)	-	-	159 (56.8)
Severity of the disease	106 (42.1)	12 (92.3)	-	3 (100)	121 (43.2)
Incidence of co-morbidities	106 (42.1)	12 (92.3)	-	3 (100)	121 (43.2)
Surgery and other problems	87 (34.5)	1 (7.7)	-	-	88 (31.4)
Low household income	-	2 (15.4)	12 (100)	3 (100)	17 (6.1)
Low cost for consultation	-	2 (15.4)	12 (100)	3 (100)	17 (6.1)
Low cost for consultation medicine	-	2 (15.4)	12 (100)	3 (100)	17 (6.1)
Less number of laboratory tests	-	13 (100)	12 (100)	3 (100)	28 (100)

Source: Primary Data

Table 4 More than 80 per cent of the patients opine that belief in a system of medicine and the effectiveness of the system of medicine are the reasons for following Allopathy. Knowledge of the system of medicine (72.2%), age of the respondents (59.9%) and awareness of the system of medicine (52%) have also influenced the patients to follow Allopathy. The severity of the disease, incidence of co-morbidities and surgery and other problems has made them follow Allopathy. Thus, the patients of NCDs report that they have more faith in the effectiveness of Allopathy treatment. The respondents following Siddha medical system opines that they believe in the medical system (100%) and 92.3 per cent of them follow due to age factor, knowledge of the system of medicine, effectiveness of the system, duration of morbidity, the severity of disease and incidence of co-morbidities respectively. Few of them report that their low household income, low cost of consultation, medicine and number of laboratory tests are also the reasons for following Siddha treatment.

UGC CARE APPROVED

Table 5
Types of Co-morbidities of the Respondents

Details	Type of Disease		Overall (n=280)
	Hypertension (n=140)	Diabetes (n=140)	
Paralyses/Stroke	6 (4.3)	11 (7.9)	17 (6.1)
Kidney Failure	9 (5.7)	15 (10.7)	24 (8.6)
Heart Problem	46 (4.3)	42 (30.0)	88 (31.4)
Eye complications	11 (2.1)	13 (9.3)	24 (8.6)
Foot Complications	32 (22.9)	45 (32.1)	77 (27.5)

Source: Primary Data

NCDs may lead to various health issues and result in various comorbidities. Table 5 depicts the types of co-morbidities of the respondents such as paralyses/ stroke, kidney failure, heart problems, and eye and foot complications. Of this, 31.4 percent of the respondents have a heart problem and 27.5 percent of them have foot complications. Next to this, 8.6 per cent of them have eye complications and kidney failure respectively while 6.1 per cent of them had paralysis and stroke. From the results, it is observed that heart problems and foot complications are more as compared to other co-morbidities. Among hypertension and diabetes patients, meagre variations are noticed in the occurrence of co-morbidities. Heart problem (32.9%) is high among hypertension patients, whereas a foot complication (32.1%) is high among diabetes patients. Besides, paralysis/stroke, kidney failure and eye complications are high among diabetes as compared to hypertension patients.

Conclusion

Campaigns and other awareness programmes related to non-communicable diseases are indispensable in educating the public regarding non-communicable diseases. A periodical health survey is needed to understand the current status of the non-communicable

disease. Special Health Care Centre for infectious diseases such as diabetes and hypertension is indispensable for the economic sections of the society. Special Health Care Insurance needs to be introduced to soften the economic impact of NCDs such as diabetes with hypertension.

UGC CARE APPROVED

References

- *Akari, et al. 2013. Health-Care Cost of Diabetes in South India: A cost of illness study. Journal of Research in Pharmacy Practice, 2(3): 114-117.*
- *Bloom, D.E., et al. 2011. The global economic burden of non communicable diseases.*
- *Chow, Clara K., et al. 2006. The Prevalence and Management of Diabetes in Rural India. Diabetes Care, 29 (7): 1717-1718.*
- *Davila, 2008. Co-morbidities of Patients with Hypertension Admitted to Emergency Departments in Florida Hospitals. Florida Public Health Review, 5:84-92.*
- *Gijsen, et al. 2001. Cause and consequences of comorbidity: A review. Journal of Clinical Epidemiology 54:661–674.*
- *Kapur, et al. 2007. Economic Analysis of Diabetes Care. Indian Journal of Medical Research, 125: 473-482.*
- *Levin A, et al. 2001. Cardiovascular disease in patients with chronic*
- *Mahal, et al. 2010. The Economic Implications of Non-Communicable Disease for India. Health, Nutrition and Population (HNP) Discussion Paper, health pop @worldbank.org.*
- *Mohan, V et al. 2009. Epidemiology of Diabetes in Different Regions of India. Health Administrator, 22 (1& 2): 1- 18.*
- *National Sample Survey Organisation. 2006. Morbidity, health care, and the condition of the aged. National sample survey, 60th round, Report no. 507 (60/25.0/1). New Delhi: Ministry of Statistics and Programme Implementation, Government of India.*
- *Taylor, D. et al. 2010. The Burden of Non-Communicable Diseases in India. Hamilton ON: The Cameron Institute.*
- *World Health Organization. (WHO 2005a). Preventing chronic diseases: a vital investment. WHO global report. Geneva: World Health Organization.*
- *Yesudian, et al. 2014. The Economic Burden of Diabetes in India: A Review of the Literature. Globalization and Health, 10 (80): 1-18.*