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Analysis of System of Treatment Opted for Diabetes and Hypertension During COVID-19

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Abstract

Background: India has two healthcare components, 1st as public which focus on basic healthcare facilities in the form of Ayushman Bharat-Primary Healthcare Centres (AB-PHCs) and Ayushman Bharat-Health Sub-Centres (AB-HSCs) in rural areas and comprises limited secondary and tertiary care institutions in key cities whereas 2nd as private sector which provides majority of secondary, tertiary, and quaternary care institutions with major concentration in metros, tier-I and tier-II cities. Indian Healthcare Sector has continued to grow at a significant rate through effective budgetary allocations and promoting collaborations. Centre and State governments spend 30% and 70% of total government spending on health care, respectively. As about 35 million diabetic and hypertension patients of aged ≥65 years are susceptible to mortality due to COVID-19, due to effect on heart, liver, kidneys and lungs, this needs more concentration and proper management of these patients. There is requirement to build an intelligent healthcare system to span the public vs private and conventional vs non-conventional healthcare system, aligned with international principles and standards for health metrics. The global prevalence of these NCDs is higher in urban than rural areas and higher in high-income than low-income countries. One in two people living with these NCDs do not know that they have these diseases. Economy of the individual and country have affected negatively by diabetes and hypertension patients. 80% of the burden of these diseases of a country can be reduced by appropriate medicines. Due to no or less side-effects, many modern medical practitioners are practicing the non-conventional system of treatment which is 80% in rural areas.

Objective: To study the system of treatment opted by the diabetic and hypertension patients during COVID-19.

Material and Method: A cross-sectional descriptive study is conducted at various institutional levels and by visiting randomly in different selected areas with help of well -developed questionnaire. The research work is conducted by collecting the data of diabetic and hypertension patients with their system of treatment opted during COVID-19 in the years 2020, 2021, 2022 and 2023. Sample size is between 900 to 1000 participants and total investigations done, are between 5300 to 5500. The investigations are done with the help of glucometer and sphygmomanometer.

Results: Total persons investigated are 5498, normal persons are 82.78% whereas diseased persons are 17.22% out of these diseased persons HTN are 10.53%, DM are 3.87% and HTN with DM are 2.82%. From 947 DM, HTN and HTN with DM patients, modern allopathic medicines or conventional system users are, DM=152 (16.05%) HTN = 316 (33.37%), DM with HTN = 103 (10.88%). Traditional medicines or non- conventional system users are DM=26 (2.75%), HTN= 106 (11.19%), DM with HTN = 24 (2.53%). Both healthcare system user are, DM=35 (3.69%), HTN=157 (16.58%), DM with HTN =28 (2.96%). Total patients of DM, HTN and HTN with DM which used modern allopathic medicines

or conventional healthcare system are 571 (60.30%), traditional medicines or non-conventional healthcare system are 156 (16.47%) and which have used both conventional as well as non-conventional system are 220 (23.23%).

Conclusions: More patients of DM, HTN and HTN with DM have adopted modern allopathic medicines/ conventional system for treatment as compare to traditional/ non-conventional system whereas many of these patients have adopted both systems of treatment conventional as well non-conventional.

Keywords: Ayushman Bharat, Healthcare sector, COVID-19, Conventional System, Non-Conventional system.

Introduction:

India has two healthcare components, 1st as public which focus on basic healthcare facilities in the form of Ayushman Bharat-Primary Healthcare Centres (AB-PHCs) and Ayushman Bharat-Health Sub-Centres (AB-HSCs) in rural areas and comprises limited secondary and tertiary care institutions in key cities whereas 2nd as private sector which provides majority of secondary, tertiary, and quaternary care institutions with major concentration in metros, tier-I and tier-II cities. For financial year 2023-24 central healthcare budget is ₹ 89,155 crore from which Health and Family Welfare Department received ₹ 86,175 crore, Health Research Department received ₹2,980 crore while AYUSH received ₹3,647 crore.[1] Indian Healthcare Sector has continued to grow at a significant rate through effective budgetary allocations and promoting collaborations. Centre and State governments spend 30% and 70% of total government spending on health care, respectively. Combined budgeted expenditure on the health sector, in financial year 2023-24, would be 1.18% of GDP. [2] Revisions in allocation to improve efficiency should not tighten the fiscal situation, which would strain the development process of poorer States, further widening inequality. [3] 80% of the diabetic and hypertension patients opt their-self the use of traditional therapies for the treatment in rural areas. The different practices known as traditional medicines system which are used by these patients, are AYUSH, Granny cure etc . [4] Indian traditional medicines system is being in use from about 5000 years BCE, hold with 341 and 395 herbal medicines separately from which Indian Ayurveda is the most ancient practice.[5] More than 60 million Indians may lead to poverty due to high out of pocket health expenses from which about 40 million are driven due to costly medicines which is 60% of the total health expenditure.[6] The patients in India are died due to inability to afford their medical care and many others end up paying through debts, selling assets and so forth.[7] The average expenditure of Indian government on health is about ₹ 1261 which is about half of the out-of-pocket expenses about ₹2494. From Indian spending on healthcare, medicines have 27.9%, private general hospitals have 25.9%, for treatment in government general hospitals 13% and the remaining is spent on other healthcare activities. Global herbal market is expected to reach US$ 550 billion as compare to estimation 2019 as US$83 billion.[8] Diabetes and hypertension are risk factors for SARS CoV-2 infection and as prognostic for severe COVID-19. Hypertension and diabetes affect millions of people around the world which increase the risk of mortality from COVID-19[9] and are appeared to be more vulnerable to develop a severe from COVID-19. [10] The mortality of diabetic and hypertension patients, from COVID-19, in initial days was more than 57% in India but this mortality was more than 85% in Himachal Pradesh whereas 43% mortality was in normal persons. [11] More than 75% diabetic patients are at higher risk of mortality with COVID-19 which is 50% higher in diabetic

patients as compare to the non- diabetic.[12] Economic challenges and socio-cultural outlook of many diabetic and hypertension patients, have increased dependence on traditional herbal medicines (THM) and also opt dualistic system of medicines, traditional herbal as well as allopathic medicine system. The role of scientifically validated THM is recognized by WHO.[13] Medicinal herbs and biological based medicines are most common form of alternatives medicines but many of these patients also opt medical pluralism. [14] Diabetes and hypertension patients are growing 13% per year. Indian public health care sector encompasses 18% of total outpatient care and 44% of total inpatient care. [15] AYUSH includes diet, herbs, metal, minerals, precious stones and their combinations as well as non-drug therapies for treatment and control of DM and HTN. The formulations like arka, asavas, churns, aristas, vati, taila, gutika, bhasma etc are used for control and treatment of these diseases in Ayurveda. [16] Due to lack of resources in public healthcare sector, 85% of the services are being paid out of pocket and about 20% patients prefer to go the private hospitals despite higher out of pocket payments. [17] As about 35 million diabetic and hypertension patients of aged ≥65 years are susceptible to mortality due to COVID-19, due to effect on heart, liver, kidneys and lungs, this needs more concentration and proper management of these patients. [18] About 38 million DM and HTN patients are died in 2012, worldwide which is 68% of the total deaths and is expected 52 millions by 2030. [19] About 36% of adults use non-conventional treatments for diabetes and hypertension due to its cost-effectiveness. Complementary and alternative healthcare and medical practices are not considered to be of conventional medicines and may be grouped within five major domains like mind body interventions, biologically-based treatments, alternative medical systems, manipulative and body-based methods and energy therapies. Several alternative systems of medicines like AYUSH, Panchakarma and massage therapies are licensed by the government.[20] 80% of the population of world rely on non-conventional therapies in developing countries for their primary healthcare. [21] Non-conventional therapies like dietary supplements, yoga, acupuncture, hydrotherapies are beneficial for diabetes and hypertension. Many traditional medicines derived from plants, minerals and organic matters which are scientifically validated are also used for these diseases. [22] India is using about 150 medicinal plant species from WHO's listed 21000 for the treatment of diabetes and hypertension.[23] Oxygen saturation, respiratory rate, heart rate and body temperature are the vital signs of blood pressure which should be 120/80 mmHg. [24] Global prevalence of diabetes is estimated to increase from 4% in 1995 to 5.4% by the year 2025. The major burden of diabetes and hypertension is more in urban areas as compare to rural areas which will likely to increase to 57.2 million by the year 2025. [25] These non-communicable diseases [NCDs] cause substantial economic burden for individuals, households and health system, in addition to morbidity and mortality and the rate of increase of these NCDs is faster in low and middle-income countries. [26] These NCDs affects the economy of the country as well as individual, negatively and 80% of the burden can be reduced by appropriate healthcare system. For this reason, modern medical practitioners are practicing the non-conventional healthcare system of treatment comparatively which is 80% in rural areas as compare to urban areas. [27] Indian Healthcare sector is emerging as one of the fast-growing service sectors in India, contributing 6% to the country's growth domestic product (GDP).[28] Himachal Pradesh, healthcare budget for financial year 2019-20 was 6.4% of its total expenditure, for 2020-21, is 6.6% , for 2021-22, it is 6.7% and for 2022-23 it is 6.6% which is higher than 26 other states of India.[29] There is requirement to build an intelligent healthcare system to span the public vs private and conventional vs non-conventional healthcare system, aligned with international principles and standards for health metrics.[30] The global prevalence of these NCDs is higher in urban than rural areas and

higher in high-income than low-income countries. One in two people living with these NCDs do not know that they have these diseases. [31] Diabetes alone affects approximately 422 million adults worldwide and 592 million people by 2035.[32] Diabetes and hypertension cause substantial economic burden for individuals with morbidity and mortality, households and health systems. World annual cost of alone diabetes treatment has been estimated to be US$ 825 billion. [33] Hypertension is leading cause for cardiovascular diseases whereas diabetes alone have about 73 million patients in India which are expected to be double by 2045 which will cause massive economic burden.[34]

Research Objectives:

To study the system of treatment opted by the diabetic and hypertension patients during COVID-19

Material and Method:

A cross-sectional descriptive study is conducted at various institutional levels and by visiting randomly in different selected areas with help of well -developed questionnaire. The research work is conducted by collecting the data of diabetic and hypertension patients with their system of treatment opted during COVID-19 in the years 2020, 2021, 2022 and 2023. Sample size is between 900 to 1000 participants and total investigations done, are between 5300 to 5500. The investigations are done with the help of glucometer and sphygmomanometer.

Results:

Total persons investigated are 5498, normal persons are 82.78% whereas diseased persons are 17.22% out of these diseased persons HTN are 10.53%, DM are 3.87% and HTN with DM are 2.82%. Maximum cases of HTN, DM, HTN and DM are in age group 61-80 and minimum are in the age group 81-100. DM cases are maximum in age group 41-60 and minimum in age group 81-100, maximum HTN cases are in age group 61-80 whereas minimum are in age group 81-100 and 18-40. HTN with DM have maximum cases in age group 61-80 whereas 18-40 group have minimum. More patients of DM, HTN and HTN with DM have adopted modern allopathic medicines/ conventional system for treatment as compare to traditional/ non-conventional system whereas many of these patients have adopted both systems of treatment conventional as well non-conventional.

Discussion:

Persons investigated are 5498 out of which 4551 (82.78%) are normal and 947(17.22%) are diseased. From diseased patients 579 (10.53%) are HTN, 213 (3.87%) are DM whereas 155(2.82%) are HTN with DM (Table No.1 and Figure No.1). In age group 18-40, total persons investigated are 1634 out of these 1596 are normal, 38 are DM, HTN, HTN with DM. From these 38 patients 14 are DM, 21 are HTN whereas HTN with DM are 3. In age group 41-60, total persons investigated are 2098 out of these 1688 are normal and 410 are diseased. From these diseased patients 67 are DM, 249 are HTN whereas 94 are HTN with DM. In age group 61-80, total persons are investigated are1682 out of these, 1210 are normal and 472 are diseased. From diseased 27 are DM, 274 are HTN and 121 are HTN with DM. In age group 81-100, total persons investigated are 84, out of these 57 are normal, 27 are diseased with DM =1, HTN= 21 and HTN with DM = 5 (Table No.2 and Figure No.2) . From 947 DM, HTN and HTN with DM patients, modern allopathic medicines/ conventional system users are DM=152 (16.05%) HTN = 316 (33.37%), DM with HTN = 103 (10.88%). Traditional medicines/ non- conventional system users

are DM=26 (2.75%), HTN= 106 (11.19%), DM with HTN = 24 (2.53%). Both are DM=35 (3.69%), HTN=157 (16.58%), DM with HTN =28 (2.96%). Total patients of DM, HTN and HTN with DM which used modern allopathic medicines or conventional healthcare system are 571 (60.30%), traditional medicines or non-conventional healthcare system are 156 (16.47%) and which have used both conventional as well as non-conventional system are 220 (23.23%) (Table No.3 and Figure No.3).

Table-1 Diabetic, Hypertension and Diabetic with Hypertension patients During COVID-19:

S.N.	Total Persons Investigated	Normal Persons	Diseased	HTN	DM	HTN with DM II
1.	5498	4551	947	579	213	155
2.	Total (%) Percentages	82.78%	17.22%	10.53%	3.87%	2.82%

Figure-1

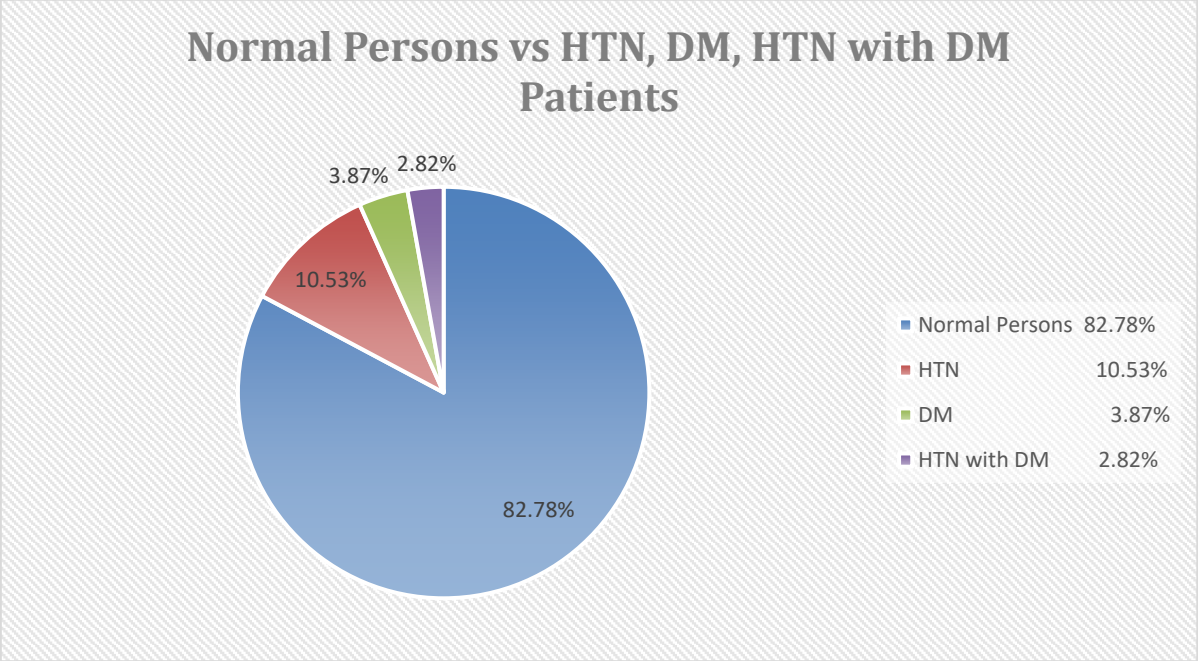


Table-2: Number of Cases of DM, HTN, HTN with DM in Different Age Groups:

S. No.	Age Groups	Total Persons Investigated both for Blood Pressure and Blood Sugar	Normal Persons	DM, HTN, DM with HTN Patients	DM (DM-I, DM-II, GDM)	HTN	HTN with DM
1	18-40	1634	1596	38	14	21	3
2	41-60	2098	1688	410	67	249	94
3	61-80	1682	1210	472	27	264	121

4	81-100	84	57	27	1	21	5
Total		5498	4551	947	169	555	223

Figure-2:

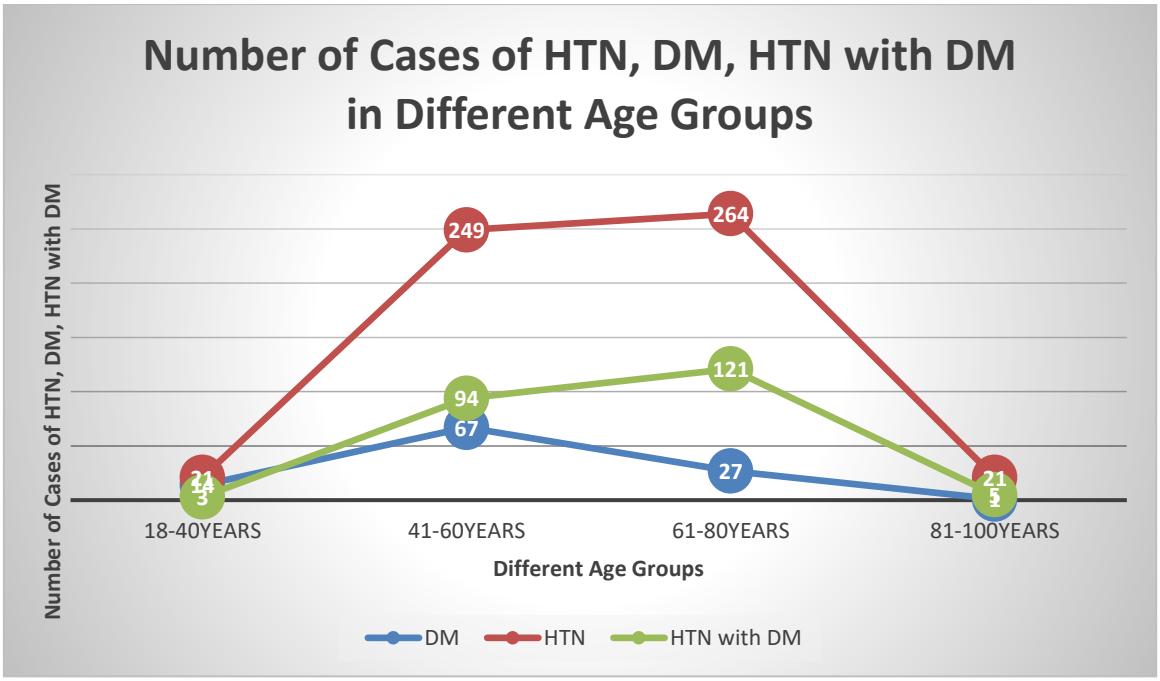
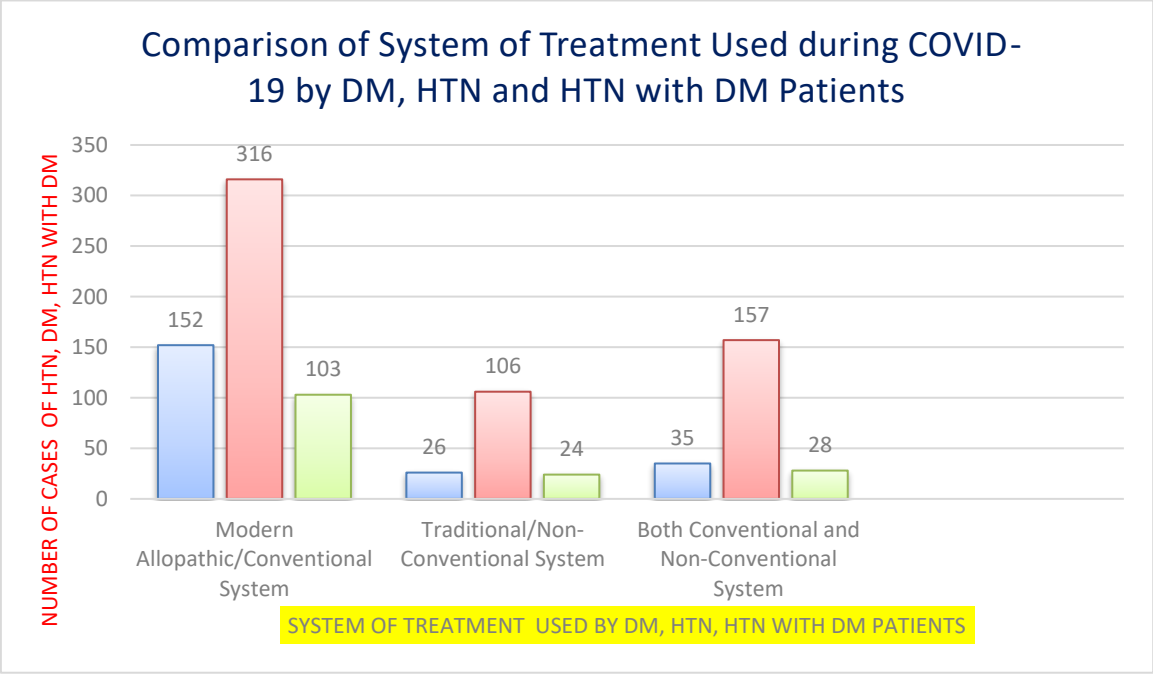


Table-3: Comparison of System of the Treatment during COVID-19:

S.No	Particulars of Treatment System Used	Comparison of Treatment for DM, HTN, DM with HTN during COVID-19			Total Patients of DM,HTN, HTN with DM
		DM	HTN	DM with HTN	
i)	Modern Allopathic medicines / Conventional System	**152(16.05%)**	**316(33.37%)**	**103(10.88%)**	**571(60.30%)**
ii)	Traditional Medicines (TM)/ Non-Conventional System	**26(2.75%)**	**106(11.19%)**	**24(2.53%)**	**156(16.47%)**
iii)	Both Conventional and Non-Conventional System users	**35(3.69%)**	**157(16.58%)**	**28(2.96%)**	**220(23.23%)**
Total Patients		**213(22.49%)**	**579(61.14%)**	**155(16.37%)**	**947(100%)**

Figue-3:



Conclusions:

Indian Healthcare Sector has continued to grow at a significant rate through effective budgetary allocations and promoting collaborations. Centre and State governments spend 30% and 70% of total government spending on health care, respectively. These non-communicable diseases [NCDs] cause substantial economic burden for individuals, households and health system, in addition to morbidity and mortality and the rate of increase of these NCDs is faster in low and middle-income countries. These NCDs affects the economy of the country as well as individual, negatively and 80% of the burden can be reduced by appropriate healthcare system. From total persons investigated, normal persons are 82.78% whereas diseased persons are 17.22% out of these diseased persons HTN are 10.53%, DM are 3.87% and HTN with DM are 2.82%. Total patients of DM, HTN and HTN with DM which used modern allopathic medicines or conventional healthcare system are 571 (60.30%), traditional medicines or non-conventional healthcare system are 156 (16.47%) and which have used both conventional as well as non-conventional system are 220 (23.23%). More patients of DM, HTN and HTN with DM have adopted modern allopathic medicines/ conventional system for treatment as compare to traditional/ non-conventional system whereas many of these patients have adopted both systems of treatment conventional as well non-conventional.

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