

# A review Comparative Interracial prevalence analysis of COVID-19 patients: With co-morbid condition On Diabetes Mellitus

<sup>1</sup>Mustapha Ibrahim Abdullahi\*, <sup>1</sup>Rakesh Das, Smranjeet Kaur,  
Department of Pharmacology, School of Pharmaceutical Sciences, Lovely Professional University,  
Phagwara, Punjab

## Abstract:

**Background:** The main objective of this study is to identify the impact of traditional dietary factors of both continents (Africa & India) to control COVID-19 by remarkable reductions in co morbid condition responsible for the pandemic situation. The reduction of risk factors by decreasing of morbidity and mortality of one continent will be the inspiration points of other continents, also in future for these types of pandemic infection. **Methodology:** As immunity is the fundamental factors to arrest the disastrous effects of this deadly virus, so more implicitly has to be focused on that with best observation data investigation. Although the assessment of the comparative interracial prevalence of COVID patients on support of comorbid condition is sharply based on the observation of various relevant data and its statistical analysis. **Conclusion:** Still work of observation is undergoing, the comparative data reveals the traditional diet associated with Diabetes Mellitus, a pandemic cause of COVID-19.

**Key-words:** COVID-19, Traditional dietary components, Diabetes Mellitus, Interracial comparative data.

Observational studies between Indian and African (Nigerian) population regarding COVID-19 viabilities shows remarkable diversities. These differences are purely based on the traditional dietary stimulated genetic make-up which reduces the Diabetes Mellitus incidence cases in Nigerian population comparatively. Incidence of COVID-19 could easily be controlled after following remarkable dietary habitat.

## 1. Introduction:

This study will bring light on vector scale prevalence on degree of COVID-19 deadly incident ratio. And also the research on the least partition coefficient ratio between morbidity and mortality rate. The interracial study could be worked out between African countries (Nigeria) race and Asian race i.e, India. If we consider the dietary style in both the continental, we can discover that African population takes more carbohydrates like potatoes as regular diet and gaining 5 time more calories in compare to Asian (INDIAN). But still the average hyperglycemic case is very rare in Africa in compare to India. In India, diabetes patients ratios increases 20 % rate on every decade as per WHO. As we familiar about the next extension of hyperglycemia is diabetes and the diabetes engulf the immunity and diminishes the individual to combat with various disease condition by lowering the body self-defense mechanism. Thus, this study scrutinize the probability of worsen COVID-19 intensity on both the countries under comparison when its connected with immune system. The morbidity rate and, mortality rate and the symptomatic/ asymptomatic parameters

would be comparative studied on support of data analysis. Which might obviously gives the idea of long term prevention mode and idea about making genetic strengthening design of dietary modules implementation.

This is international race characteristics comparison project which is concentrated on immunity level for Pharmaco-epidemiology study to diabetic patients to investigate prevalence on COVID-19. The outcomes reflects the promising evidential notations regarding the identification of advance genetic codon preparation/ modification based dietary practice, optimization of selective antidiabetic drugs therapeutic regime for hyperglycemic patients in Africa, the best supportive implication of diets parallel to anti-diabetics comparatively and improvement in advanced pharmacotherapy modules targeting to diminish mortality and morbidity rate.

## 2. LITERATURE SURVEY

This is a cross-sectional; analytical study was an intensive health evaluation focusing on dietary nature of 170 randomly selected age's respondents in Sharpeville, in South Africa. The data further showed a demonstrated a pattern that with a higher food variety and dietary diversity, a better mean sufficiency ratio is reached for this low-income group of elderly subjects. The results showed that food variety and dietary diversity scores give a fairly good assessment of the adequacy of the diet, and scoring dietary diversity may be a significant, yet simple tool to spot aged persons at risk of food and nutrition insecurity. Indications show that increased vegetable and fruit intake boost health. The intake of vegetables and fruit intake in South Africa is much lower than. Some finding suggests that a high concentration of carbohydrate and cassava intake (84% of a mean daily supply of 1916 calories) combined with also low protein consumption (8% of caloric supply) does not cause diabetes disease. This does not support the World Health Organization hypothesis that malnutrition-related to diabetes [1-3].

One study was to estimate and provide evidence with recommendations on current published literature about go on a diet and lifestyle in the prevention of type 2 diabetes. Epidemiological and intervention studies, that specialize in nutritional intervention within the prevention of type 2 diabetes, are used to make disease-specific recommendation. Based on the strength of available evidence regarding diet and lifestyle in the prevention of type 2 diabetes, it is recommended that a normal weight status in the lower BMI range (BMI 21–23) and regular physical activity be maintained throughout adulthood; abdominal obesity be prevented; and saturated fat intake be less than 7% of the total energy intake [4]

One study was a prospective cohort study among 6,192 individuals with confirmed diabetes mellitus (mean age of 57.4 years, and median diabetes duration of 4.4 years at baseline) from the European. Dietary fiber, carbohydrate quality and quantity are associated with mortality risk in the general population. Whether these can also the case among diabetes patients is unknown. These associations became stronger after exclusion of energy misreporters. High fiber intake was attached with a decreased mortality risk. High glycemic load, carbohydrate and sugar intake were related with an increased mortality risk in normal weight individuals with diabetes [5].

This study provides qualitative information about current food knowledge, attitudes and practices among T2DM patients and their parental figures within the district of Kumasi, Ghana. Results also discovered a problem-solving approach to increasing vegetable consumption, and a concern about unhealthy food preferences among younger generations. Education about the impact of commonly available carbohydrates on blood sugar should be emphasized; messaging on portion sizes and certain foods should be more consistent; the economic benefits of local vegetable expenditure should be promoted; and a research-informed, T2DM prevention campaign should be developed specifically for younger generation [7].

National population-based survey data to quantify diabetes prevalence and met and unmet need for diabetes diagnosis and care in 12 countries in the region of Africa. New health policies and programmes are urgently needed to increase awareness of diabetes and to expand coverage of preventive counseling, diagnosis, and linkage to diabetes care. [8].

Diabetes mellitus could be a significant and rising reason for morbidity and mortality in the region of Africa. Epidemiological studies are often logistically and cost-effectively difficult, but processes of rural and urban migration and epidemiological transition are certainly raising the prevalence of type 2 diabetes [9].

The diabetes risk factor profile for this study community is similar to that seen in high-income populations. A high percentage of individuals with diabetes are unattainable diabetes treatment and of those on treatment a high percentage have high glycaemic concentrations. Such data may assist in healthcare planning to ensure timely diagnosis and management of diabetes [10].

Diabetes is a rising problem in sub-Saharan Africa region. Type 2 diabetes, the most familiar form, is becoming more prevalent owing to rising rates of obesity, physical inactivity and urbanization. The current morbidity of diabetes is primarily due to the high rates of micro vascular complications, while macro vascular complications, once rare, are becoming more common, particularly in the urban setting. [11].

Diabetes Mellitus (DM) is a chronic, incapacitating and expensive disease. Worldwide, incidence of the disease is increasing quickly, growing to pandemic levels especially in the developing world, impacting it negatively through the gross morbidity and mortality arising from its acute and chronic complications. To review the literature on the impact of DM in Nigeria, The challenges arising from the disease to individuals, families, societies and communities and the way further in managing this developing national and global threat. DM is one of the commonest reasons for admission in Tertiary Hospitals in Nigeria with hyperglycemic emergencies and diabetic foot ulceration (DFU) being the commonest indications for admission. DFU is infamously responsible for prolonged hospital stay, morbidity and mortality. Most Governments of African countries including Nigeria do not recognize the disastrous potential of the diabetes epidemic and need to reverse [12].

Diabetes prevalence is rising globally, and Sub-Saharan Africa is no exclusion. With assorted health challenges, health authorities in Saharan Africa region and international donors need strong data on the epidemiology. A comprehensive and up-to-date review of the epidemiological trends and public health implications of diabetes in Sub-Saharan Africa. The significant interactions between diabetes and important infectious diseases emphasize the need and opportunity for health planners to develop integrated responses to communicable and non-communicable diseases [14].

The Africa Region (AFR), where diabetes was uncommon, has witnessed a surge with the condition. Type 2 diabetes prevalence among 20–79-year-olds is 4.9% with the majority of people with diabetes <60 years old; the highest percentage (43.2%) is in those elderly 40–59 years. This highlights the inadequate response of local health systems which require supplying accessible, affordable and optimal care for diabetes patient [15].

Corona virus disease 2019 (COVID-19) has exposed unnoticeable unprepared the world is for a pandemic and the way easily viruses spread in our consistent world. A governance crisis is relating

alongside the pandemic as health officials around the world compete for access to scarce medical supplies. As governments of African countries, and those in low-income and middle-income countries around the world, seek to avoid potentially shattering epidemics and learn from what has worked in other countries, testing and other medical resources are of concern. With accelerating spread, funding is urgently needed [16].

Total numbers of COVID-19 cases and deaths reported to this point in the Saharan Africa region are considerably lower than those across the Americas, Asia, and Europe. As a result, there has been limited Data about the demographic and clinical characteristics of deceased cases within the region, yet because of the impacts of various case management strategies. Further investigation into convalescent plasma is warranted, as data on its effectiveness specifically in treating COVID-19 becomes available. The success of supportive or curative clinical interventions will rely on earlier treatment seeking; specified community engagement and risk communication are critical components of the response [17].

Since the First COVID-19 outbreak in China, much attention has focused on people with diabetes because of poor prognosis in those with the infection. Early reports were mainly on people with type 2 diabetes, although recent surveys have shown that individuals with type 1 diabetes are also in danger in risk of severe COVID-19 [18].

The COVID-19 pandemic has added a massive toll to the prevailing challenge of diabetes care world-wide. Particularly, individuals belonging to racial/ethnic minorities in the U.S. and other countries are significantly and disproportionately impacted [19].

On December 31, 2019, the Chinese government formally announced the identification of a new type of corona virus (SARS-CoV-2) as the etiological cause of a severe acute respiratory syndrome in Wuhan city, Hubei Province. Africa had only 15249 confirmed cases and 816 deaths (<https://africacdc.org/covid-19/>). This undeniable disproportion of cases and deaths between the African region and others is prominent [20-23]. Calming care should be a component of COVID-19 management to relieve suffering, improve patient outcome and save cost. Governments and policymakers in Africa must prioritise palliative care within case management guidelines to make sure patients with COVID-19 have access [24]. Diabetes mellitus (DM), cancer, cardiovascular diseases and chronic respiratory diseases, communally noted as non-communicable diseases (NCDs), are the leading causes of mortality worldwide. Increased morbidity and mortality from COVID-19 in patients with DM are noted in countries hardest hit by the pandemic, and this association and therefore the optimal management of infected patients with DM deserve close scrutiny [25]. The recently emerged novel corona virus, “severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2)”, caused a very contagious disease called corona virus disease 2019 (COVID-19). Therefore, during this review the collected and summarized the currently available literature on the epidemiology, etiology, vulnerability, preparedness and economic impact of COVID-19 in Africa region, which can be useful and supply essential information on ongoing COVID-19 pandemics within the region [26]. An understanding of the COVID-19 spread is rising around the world, to this point little understood of Africa. This paper explores the time–space geographies of COVID-19 infection specializing in Africa and Nigeria particularly. While Nigeria has only recorded about 25,964 cases as at the time of writing, the country is struggling to match pressures from growing cases as a result of existing disparities in health care systems [27]. The whole worlds are facing this COVID-19 pandemic, the foremost serious health crisis in present. This pandemic affects all people but it’s serious in case of diabetes, age’s and in chronic and complicated disease [28]. High prevalence of diabetes makes it an important comorbidity in patients with COVID-19. Blood sugar control is important not just for patients who are infected

with COVID-19, but also for those without the disease. Innovations like telemedicine are useful to treat patients with diabetes in today's times [29]. To examine the prevalence of obesity and diabetes among adult men and women in India consuming different kind of vegetarian diets compared with those consuming non-vegetarian diets. A cross-sectional data of 156,317 adults aged 20–49 years who participated in India's third National Family Health Survey (2005–06). Findings may help within the development of intervention to deal with the rising burden of overweight/obesity and diabetes in Indian population. However, prospective studies with better measures of dietary intake and clinical measures of diabetes are needed to clarify this relationship [30]. Worldwide, type 2 diabetes mellitus (T2DM) is measured as one of the most common diseases. The etiology of T2DM is complex and is related with irreversible risk factors like age, genetic, race, and ethnicity and reversible factors like diet, physical activity and smoking [31]. Diabetes mellitus could be a familiar disease affecting several million individuals worldwide. The various plant foods which form an important part of our diet not only acquire blood sugar lowering properties but also are beneficial in decreasing the risk factors for cardiovascular and renal diseases through various mechanisms including free radicals [32]. The study was to examine the association of dietary carbohydrates and glycaemic load with the risk of type 2 diabetes among an urban adult Asian Indian population. [33]. The main objective of this study is to examine the impact of diet counseling on patients with Type 2 Diabetes Mellitus (T2DM). In India subjects who received periodic, intensive diet counseling did not show symptoms of progression to diabetic complications, and also failed to attain insulin therapy for the management of their disease [34]. Patients with diabetes who get corona virus disease 2019 (COVID-19) are at risk of a severe disease course and mortality. Management of patients with diabetes in times of lockdown on mobility pose some challenges and novel approaches like telemedicine can be useful [35]. Diabetes mellitus is related with poor prognosis in patients with COVID-19. On the opposite hand, COVID-19 contributes to worsening of dysglycemia in people with diabetes mellitus over and above that contributed by stress hyperglycemia. The two-way interaction between COVID-19 and diabetes mellitus sets up a vicious cycle where in COVID-19 end up in worsening of dysglycemia and diabetes mellitus, during turn, exacerbates the severity of COVID-19. Thus, it is imperative that people with diabetes mellitus [36]. The corona virus disease (COVID-19) pandemic has been one among the key health challenges that humanity has witnessed in recent times. This article reviews the connection between diabetes and COVID-19 and suggests various precautions to be taken for people with diabetes, the management strategies for diabetes and lays down a strategic framework for managing people with diabetes and COVID-19 [39]. It is significant to know the prevalence of DM within the same age group as that affected by COVID-19. Consequently although DM is related with a twofold raise in severity and mortality with COVID-19, based on recent evidence, the susceptibility of people with DM to COVID-19 infection does not essentially appear to be increased as compared to the patients without diabetes [40]. The practice of preventive measures by the risk group of Undiagnosed Diabetes Mellitus patients will prevent them from getting infected by COVID-19 and at the same occasion Time decrease mortality rates and hence the undiscovered group that is the patients of undiagnosed diabetes mellitus has to be vigilant regarding safe preventive practices [41]. The objective of this study was to evaluate the pooled estimate of diabetes prevalence in young (<50 years) versus age's (>50 years) COVID-19 cohorts. The intermingled effects of diabetes with other cardiovascular comorbidities warrant age-specific outcomes data including the impact of ongoing anti-diabetic treatment. [42] India is one among of the epicenters of the worldwide diabetes mellitus pandemic. Rapid socioeconomic development and demographic changes, together with increased susceptibility for Indian individuals, have led to the explosive raise in the prevalence of diabetes mellitus in India over the past four decades. During this Review, A discusses on epidemiology of diabetes mellitus and its complications in India and descriptions the advances made in the country to confirm adequate care. Make specific references to novel, cost-effective interventions, which could be of relevance to other low-income

and middle-income countries of the globe [43]. The burden of diabetes is growing rapidly in India but a systematic understanding of its distribution and time trends is not available for every state of India. For each 100 overweight adults aged 20 years or older in India, there have been 38 adults (34–42) with diabetes, compared with the universal average of 19 adults (17–21) in 2016 [44]. India is the diabetes capital with home to 69.1 million people with DM, the second highest number of cases after China. Latest epidemiological evidence indicates an increasing DM epidemic across all classes, both wealthy and the poor in India. This article reports on the prevalence of diabetes and pre-diabetes within the North Indian state of Punjab as part of a large household NCD Risk Factor Survey. The study reported high prevalence of diabetes, especially of undiagnosed cases amongst the adult population, most of them have uncontrolled blood glucose levels. This indicates the need for systematic screening and awareness program to identify the undiagnosed cases within the community and offer early treatment and regular follow-up [45]. Diabetes has become a main health care problem in India with an estimated 66.8 million people suffering from this condition, representing the largest number of any country in the globe. Result-oriented organized programs involving patient education, as well as updating the medical fraternity on various developments in the management of diabetes, are required to combat the current diabetes epidemic in India [46]. Diabetes mellitus is growing its share of burden to the health related problems in developing countries like India. One study demonstrated that advancing age, low physical activity, family history, overweight, and obesity were the prominent factors that predicted the risk of diabetes within the near future. Hence, focused interventions for urban slum dwellers are imperative and draw special attention [47].

Diabetes mellitus is a chronic and potentially disabling disease that represents a significant public health and clinical concern because of the economic burden it imposes on the person, family, and society. The studies DM is an expensive illness to treat even in developing countries. The main impact of financial burden is borne by the family. Any efforts at cost reduction should, therefore, have the family as its focus, and relieving the family of this financial burden has to be prioritized [49]. The management of diabetes mellitus involves numerous therapeutic modalities, and also the optimal use of a therapeutic agent depends on the clinician's assessment of the exceptional clinical situation that an individual presents with. These are based on practical scenarios faced by clinicians and might be used in a general practice or specialist setting [50]. A cross-sectional institutional-based study has been undertaken to understand the prevalence of Gestational Diabetes Mellitus (GDM) among pregnant women in India population. The results of this study indicate that bad obstetrics history, obese patient on high calorie diet especially non vegetarian diet with less physical activity are highly susceptible to develop GDM [51]. In last two-decade prevalence of Diabetes Mellitus in India is growing at higher rate and currently India is the Diabetic Capital of the globe. Consistent and informative epidemiological evidence is vital to quantify impacts and predictors of disease and to facilitate formulation of prevention and control strategies. There is a need for continuous screening program and lifestyle modifications to timely detect and intervene in the pathogenesis of diabetes mellitus [52]. India leads the world with biggest number of diabetic subjects earning the uncertain distinction of being termed the "diabetes capital of the world". There is a huge heterogeneity of diabetes prevalence within urban populations in India. There are few community based studies has been taking in Ahmadabad city for prevalence of diabetes. It is important to have region-specific prevalence data of diabetes so that appropriate [53].

### 3. LITERATURE EXTRACTION

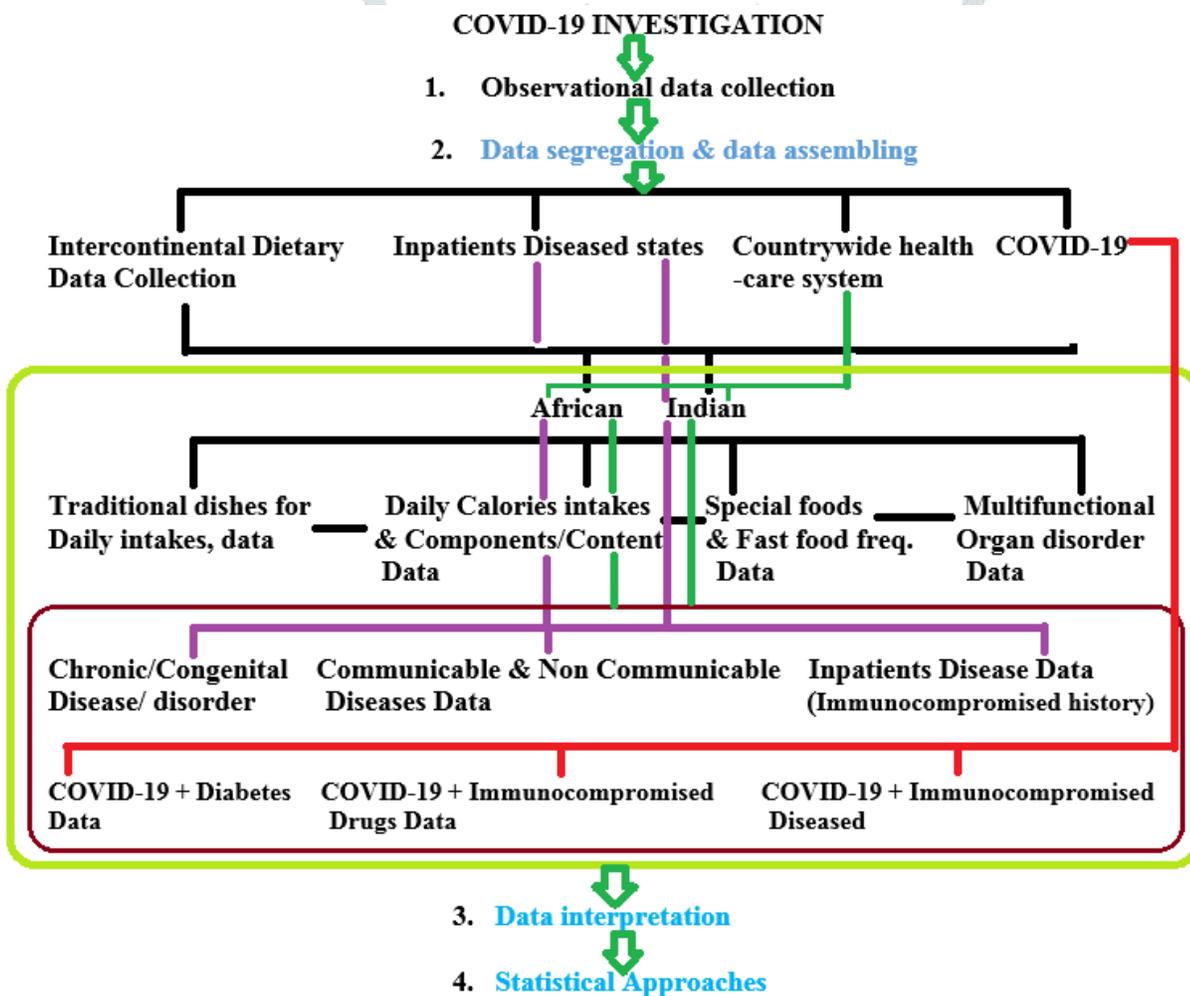
The literature collection were done as per the required topic. Most of the literature were from dietary details of Africa as well as from India. The Calulu (Dried fish with vegetables, often onions, tomatoes, okra, sweet potatoes, garlic, palm oil, and *gimboa* leaves (similar to spinach); often served with rice, funge, palm oil beans, and *farofa*.); Nigerian dish- [Frejon](#) (Frejon (from *Feijão*, the Portuguese word for "beans") is a coconut bean soup which is eaten especially during [Holy Week](#) by a selection of Christians, mostly Catholics, across the world.). Also foods like Wheat, Fried yellow plantain with tomato sauce, Kidney beans, Banga soup, Potato and eggs with high calories. A typical West African meal is made with starchy items and can contain meat, fish as well as various spices and herbs. A wide array of staples are eaten across the region, including fufu, banku, kenkey (originating from Ghana), foutou, couscous, tô, and garri, which are served alongside soups and stews. But the majority of diet in Indian dishes are common rice, potato and wheat as carbohydrates which is actually 40% less caloric compared to African common dishes.

Today, however, diabetes is very rare in Africa, a condition that appears to have remained virtually unchanged until the 1990s and more recently. The prevalence of diabetes mellitus among Africans appears to have been 1%-6% a few years ago; 10%-13% among Caribbeans of African origin and 12%-15% among African Americans, which is high. Interestingly, in the past, the white population in Africa has shown proportions ranging from 6 percent to 10 percent greater than or equal to those of European whites. On the other hand, one in six individuals (17 percent) with diabetes in the world is from India. (The population of India was around 17.5 percent of the global total as estimated in October 2018.) By 2045, the figure is expected to rise to 134 million by the International Diabetes Federation.

Sub-Saharan Africa's health care tends to be the poorest in the world, with few countries being able to spend the \$34 to \$40 per person per year that the World Health Organization considers to be the minimum for basic health care. And amid widespread poverty, an astonishing 50 percent of health spending in the country is funded by individuals' out-of-pocket payments. The attention of donors has resulted in remarkable efforts to combat HIV/AIDS, tuberculosis and malaria. Yet much of the country lacks health care facilities and is facing a significant shortage of qualified medical staff. Demand for high quality health care can only increase further as African economies develop. India is in the highest shape as compared to the healthcare sector. There have been many health problems facing India as a developing country, communicable and non-communicable. India succeeded in beating polio and handling the outbreak of the Nipah virus in the southern Indian state of Kerala in 2018, which took 17 lives. In a recent Indian Council of Medical Research (ICMR) study entitled India: Health of the States of the Nation: The India State-Level Disease Burden Initiative (2017), it is noted that as measured using Disability-Adjusted Life Years (DALYs), the disease burden due to communicable, maternal, neonatal, and nutritional diseases, Between 1990 and 2016, it fell from 61% to 33%. An infection or therapeutic treatment may react differently to the immune systems of any two individuals. A large-scale study was launched four years ago by a team led by Lluís Quintana-Murci, CNRS research director, Scientific Director at the Institut Pasteur and Head of the Human Evolutionary Genetics Unit (Institut Pasteur/CNRS), to understand the genetic and evolutionary basis of these variations. The results are now being released in Cell. Together with teams from the French National Genotyping Centre (CEA), the Max Planck Institute based in Leipzig and the Max Planck Institute based in Leipzig. Scientists studied the genome-wide expression of genes involved in the immune response of 200 people, 100 of European descent, and 100 of African descent at Ghent University. More precisely, to identify the way immune cells known as monocytes, a crucial part of the innate immune response, react when attacked by bacterial or viral ligands, including the influenza virus, they sequenced the entire

RNA of these individuals. Their first finding was that in Africans and Europeans, the amplitude of the immune response varied, especially in the case of genes involved in inflammatory and antiviral responses. These differences can largely be attributed to genetic variants that modulate the expression of immunity genes, distributed differently among Africans and Europeans. This finding provides insights that can help to shed light on why some populations are more vulnerable to diseases such as lupus, which is more popular than in Europe in Africa. Witnessing a constant surge in Maharashtra, Gujarat, Tamil Nadu and Delhi, medical experts have stated that there is no point in claiming that "herd immunity" has been created by India. "Dr Prasun Chatterjee, Associate Professor, Department of Geriatric Medicine, All India Institute of Medical Sciences (AIIMS) told ANI: "It is difficult to solve this pandemic by assuming that we will have herd immunity tomorrow. In the UK, herd immunity has collapsed. There's no point in claiming that herd immunity has been established by India. Through the lockout, we have tried to control the virus. Mainly, since their immunity is very new, we try to develop herd immunity through children. I do not know why many literate people believe we are resistant to the virus. This strategy is depressive. Herd immunity has a multiplier effect. If we develop it in the case of COVID-19, we can protect many people, but it is not so easy. Most notably, however, herd immunity will function only if there is already some vaccination.

**4. METHODOLOGY**  
**4.1. Study Design:** A brief discussion of protocol investigation as a flowchart summary to get best target



**Figure-1:** The study design flow chart inspired from literature evaluation to initiate the topic for research work.

## 4.2. Protocol Sequences

This is observation study which is purely relies on the intercontinental datas between India and Africa. The data assembled from the various authenticable sources are directly and indirectly connected with the WHO. The sequences of data should be from health and diet related. The datas would be initiated with diets, health conditions especially diabetes, immunity level, communicable and non-communicable diseases, recurrence of diseases etc of each country and its comparison factors associated.

- 1) Rapid findings of various literature from many different review articles and research articles which should be relevant to various important disintegrated portions of topic contents.
- 2) The articles has to be assemble as per segregated parts of topic contents, which is to be stacked as per the sequences of priority.
- 3) Careful investigation of literature has to be scrutinized which covers backgrounds, methodologies, results & discussions, conclusions, associated data, tables, figures, purpose etc. More stress has to be confined towards the correlation between the surveyed literatures.
- 4) All similar data and correlated data has to be studied to see any emerging innovated indications outcomes are denoting or not. This would covers the tables, statistics and associated data etc.
- 5) Data has to be observed, selected and collected from relevant authenticated sources like WHO's reports dissimilated in online internet as open data.
- 6) The data will be concerned with Intercontinental (African & Indian) Dishes & Dietary components, their health scenarios, diseased status, inpatient demographics details, prevalence and incidence of COVID-19 inpatients details.
- 7) The data associated with the innate immunity system of the population and its correlation with associated disease tolerance.
- 8) Recurrence of COVID-19 and its viability status. Findings of morbidity & mortality rates and its comparison prospective and retrospective studies within COVID-19 pandemic times.
- 9) The identification of normal diabetic patient's situations and its complications with or without an UTI, RTI, Gastro-infection etc.
- 10) Data associated with Diabetics inheritance epidemiology and associated COVID-19 and /or other immune-compromised diseased state or situation of patients on immunosuppressant drugs.
- 11) Comparative studies of Diabetes associated COVID-19 patient's prevalence as well as recovery times in both countries and continents at this pandemic time.

## 5. OBSERVATION

This **Table-1** below was extracted from a countrywide report online dataset. Which was counted from

22/1/2020 to 4/8/2020 where the ratio of incidence of COVID-19 was scrutinized and the selection of number of viable patients were identified & evaluated as per the sign and symptoms. Where it is represented on Table-1, having 50 countries of Africa continents and India. The comparative scales shown below differentiate earth and sky report. The COVID-19 viabilities of African countries ranges showing 0-276 and India has 52,050 as per the date mentioned. Also, Nigeria shows 44 (Which is 3<sup>rd</sup> largest rank of COVID-19 viability), where Egypt is on Top with 276 followed by Algeria 113 cases. This shows a complete figure to switch on the investigation. Many factors were there which could be cleared with ongoing observation studies.

Sl.No	Country/Region	Latitude	Longitude	4/6/2020	4/7/2020	4/8/2020
1	Egypt	26	30	276	276	276
2	Algeria	28.0339	1.6596	113	113	113
3	Nigeria	9.082	8.6753	35	44	44
4	Morocco	31.7917	-7.0926	93	97	97
5	Senegal	14.4974	-14.4524	92	105	113
6	Tunisia	34	9	5	25	25
7	South Africa	-30.5595	22.9375	95	95	95
8	Cameroon	3.848	11.5021	17	60	60
9	Togo	8.6195	0.8248	23	23	23
10	Burkina Faso	12.2383	-1.5616	108	127	127
11	Democratic Republic of the Congo	-4.0383	21.7587	5	9	9
12	Ivory Coast	7.54	-5.5471	41	41	41
13	Ethiopia	9.145	40.4897	4	4	4
14	Sudan	12.8628	30.2176	2	2	2
15	Kenya	9.9456	-9.6966	5	5	5
16	Guinea	-0.0236	37.9062	4	9	9
17	Ghana	7.9465	-1.0232	31	31	31
18	Namibia	-22.9576	18.4904	3	3	3
19	Seychelles	-4.6796	55.492	0	0	0
20	Eswatini	-26.5225	31.4659	4	4	4
21	Gabon	-0.8037	11.6094	1	1	1
22	Mauritania	21.0079	10.9408	2	2	2
23	Rwanda	-1.9403	29.8739	4	7	7
24	Madagascar	-6.27035	34.82345	3	5	5
25	Tanzania	1.37073	32.30324	0	0	0
26	Uganda	-18.7793	46.83446	2	11	11
27	Somalia	5.163287	46.2037	1	1	1
28	Angola	-11.2135	17.877	2	2	2
29	Zimbabwe	-19.0169	29.1528	0	0	0
30	Zambia	-13.1404	27.8493	5	7	7
31	Niger	17.59688	8.082851	26	26	26
32	Liberia	6.4337	-9.42175	3	3	3

33	Mozambique	-18.6697	35.52734	1	1	1
34	Central African Republic	6.619407	20.9367	0	0	0
35	Chad	15.44611	18.735	0	2	2
36	Mauritius	-20.2067	57.6755	7	8	8
37	Benin	9.321721	2.310005	5	5	5
38	Eritrea	15.18797	39.78816	0	0	0
39	Djibouti	11.82267	42.58835	9	25	25
40	Equatorial Guinea	1.619514	10.31778	3	3	3
41	Gambia	13.44579	-15.3061	2	2	2
42	Cape Verde	15.12014	-23.6052	2	2	2
43	Libya	26.33471	17.26921	1	1	1
44	Mali	17.57393	-3.98611	1	2	2
45	Guinea –Bissau	11.77235	-15.1696	9	12	2
46	Sierra Leone	8.4606	11.7799	0	0	0
47	Botswana	-22.3428	24.6871	0	0	0
48	Burundi	3.3731	29.9189	0	0	0
49	Malawi	13.2543	34.3015	0	0	0
50	South Sudan	7.862685	29.69492	0	0	0
51	Sao Tome & Principe	0.199695	6.610564	0	0	0
<b>INDIA</b>						
<b>1</b>	<b>INDIA</b>	<b>20.5937</b>	<b>78.9629</b>	<b>9306</b>	<b>22771</b>	<b>52050</b>

**Table-1:** Table representing the comparative COVID-19 cases of African and India Continents

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