

# Pharmaceutical Sciences and Research Vol: 2(1), 2023 REST Publisher; ISBN: 978-81-956353-1-3 Website:<u>http://restpublisher.com/book-series/pharmaceutical-</u>sciences-and-research/



DOI: https://doi.org/10.46632/psr/2/1/4

# Analysis of Diagnosing Alzheimer's Disease Using the DEMATEL Method

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Abstract: Alzheimer's is a variety of dementia find out in ways. Mostly, alzheimer's is a doctor's examination that detected by they are your symptoms evaluates the symptoms will do many tests. About symptoms and behavior learn more about their friends and talk to family members. Alzheimer's getting a diagnosis is important. Correct diagnosis, proper treatment, care, family education, and future are important to get plans. Alzheimer's dementia, your primary care physician, trained in brain states doctor neurologist or therapy the elderly trained doctor senior doctor your symptoms, medical history, medicine review the history do like someone close to you will interview. Friend or family member. To diagnose alzheimer's dementia, doctors' memory loss and to assess other thinking skills, assess functional abilities, and detect behavioral changes by conducting tests. For deficiency to rule out other possible causes they are constantly experimenting are doing dementia is of the brain with a continued decline in activity name of a group of associated symptoms. It is memory, thinking ability, and other mental affect abilities. For alzheimer's disease, the exact reason is more completely not understood, however, many things can create this condition considered to increase the risk. Alzheimer's disease is in the brain neurons stop working, and other neurons lose their connection and die condition. Memory, thought, language, in judgment, and conduct will have a negative impact on loss of brain function, it is a common cause of dementia. Alzheimer's is irreversible and progressive. The decision-making trial and evaluation laboratory (DEMATEL) is regarded as an efficient technique for locating the causal links in a complex system. It focuses on assessing the interdependencies between elements and identifying the crucial ones using a visual structural model. Hypertension, Myocardial infarction, Angina pectoris, stroke, Chronic obstructive pulmonary disease Hypertension, Myocardial infarction, Angina pectoris, stroke, Chronic obstructive pulmonary disease. From the result, it is seen that Hypertension got the first rank where as the Angina pectorisis having the lowest rank. Keywords: MCDM, Hypertension, Myocardial infarction, Angina pectoris.

# 1. INTRODUCTION

Alzheimer's disorder is a brain disease, it is a reminiscence that slowly destroys thinking skills, eventually, simple tasks will be performed reducing efficiency by disease in most affected individuals, early alzheimer's is in the person's mid-30s and 60s occurs and is very rare. To date, cerebrospinal b-amyloid, total tau in a fluid. Elisa of phospho-tau-181 measurement means more specification and sensitized potential ad more advanced to detect and is the accepted method. Ad is acute denervation of the brain the disorder is memory loss and is characterized by cognitive decline [1]. Alzheimer's disease pathologically tested. Half of a brain was frozen for biochemical studies the other half was fixed in formalin many as part of a research project a year from sources continuously over time brains were obtained. Alzheimer's disease diagnosis of brain tissue by histological examination the only way to be sure is a biopsy or autopsy. Its aggression and patient care due to less chance of conversion brain biopsy are idiopathic of the course of chronic dementia a part is rarely [2]. Alzheimer's ailment residing in the community the first used inside the gift look at the test, a short transportable intellectual status questionnaire. It is basically on the spot and assesses behind-schedule memory. The maximum essential symptom of alzheimer's ailment in retaining new information is a dramatic drawback. Alzheimer's along with the medical diagnosis of the disease in identifying patients emit is more effective than it was hypothesized to be a screening device. With the progression of the disease, emotional physical indifference, conversation loss of ability to continue, disorientation, and such as mood swings symptoms occur, and these complications ultimately lead to patient death led to in following, cads alzheimer's diagnosis using some of the methods will be reviewed [3]. For measuring mta, the cutting-edge method

#### Manjula et.al /Data Analytics and Artificial Intelligence 2(1) 2023, 32-43

of desire is 3d magnetic resonance imaging (mri) based measurement, but this method is complicated the method is not clinically implemented. Clinical standard of alzheimer's disease urinary ad7c-ntp with a diagnosis for comparative diagnostic accuracy studies medline and other electronic databases from the beginning to the present day we searched. We conduct citation searches, and of included studies, we screened reference lists [4]. Revised for alzheimer's disorder according to the standards, patients with ad dementia are a symptom. For measuring mta clinical and cognitive criteria in neuropathology, when met definitive diagnosis as the gold standard established. Medical assessments and ad within the early ranges of the disorder improve prognosis. Experimental treatments for disease symptoms alzheimer's disease biomarker classification, and clinical signs of alzheimer's disease before it appears it is widely used [5]. Alzheimer's disease and assocd early detection of disorders and their general and formal describe characteristics. Recently for ad revised diagnostic research to evaluate the criteria, of existing selection fashions to investigate compatibility, and diagnostics of selection fashions we centered on capabilities. Alzheimer's disease (ad) global incidence in 2010 turned 35.6 million estimated, it is in 2050 a hundred and fifteen four million. The reliability of hippocampal markers scan these four pipelines for inspection are used in the revision database. Alzheimer's disease neuroimaging studies between clinical groups to diagnose alzheimer's disease initiative dataset analysis competing methods are used [6]. Alzheimer's disease international, 2010 the world alzheimer's report, this disease 35 million people affected estimated \$604 billion annually will cost. In america, at that time the annual cost is estimated at \$263 billion. Unpaid care of patients this is per year, including expenses, and estimated to be \$221 billion. Alzheimer's disease in down syndrome is not entirely new. Das and misra (1995), down alzheimer's syndrome dementia important steps to detect planning, articulation, and administration of all aspects of operation suggested that inclusive [7]. Many with animal research studies alzheimer's disease air pollution in neuropathology correlates, but ad's air pollution at risk the actual impact is unknown. Alzheimer's disease study alzheimer's disease sertraline in the treatment of depression continues to explore the role, over 12 weeks of collected data and 24 released in weeks. These are both sertraline over placebo did not prove superior. Before the proposed 90-100 mg, the daily dose range is safe and they agreed that it was appropriate [8].

This can be very debilitating in modern societies alzheimer's disease is chronic and it is a neurodegenerative disease, it affects all mental faculties that are dull. Diseases and dementias are one in 1,000,000 more people have various related diseases and the alzheimer's disease international institute estimates, by 2050 they could be 132 million. Early diagnosis in the first-place discussions about 'alzheimer's disease' and how is it defined should be investigated because it is an equivalent, and represents a poorly defined phenomenon. Second, to avoid speculative ethics about new diagnostic technologies of promises and expectations credibility is critical valuation is important [9]. Iqck, adamts1, ace, and adam10 in alzheimer's disease risk signals ace and adam10 alzheimer's disease candidate genes 18-22 were previously reported, but in some subsequent studies, they are not replicated 23-25. Alzheimer's disease or dementia family history proxy26 using recent was, this identified both risk levels. Proxy studies related to the disease can identify parts [10]. In alzheimer's disease, early detection of structural magnetic resonance imaging progression of the disease using slowdown is essential for early treatment. So, accurate computer-aided diagnoses are required. Alzheimer's disease opinion 20 am emerged in the later part of the century, first of all, non-cognitively impaired were defined as persons who, they were ad at autopsy revealed brain lesions. Alzheimer's pathological markers of disease with development, these markers in cognitively normal individuals while the ideology evolved and premature alzheimer's disease is now considered [11]. Alzheimer's association disorders disease criteria alzheimer's disease and related potential. Anticholinergic or opioid-used drugs with properties participants were excluded, but quant if stable, estrogens, cholinesterase inhibitors, and vitamin e the use of is allowed. The cost of alzheimer's disease eeg as a minimal screening tool has great potential. However, the specificity of the eeg is still not enough. In a previous study, in the early degrees of alzheimer's disorder advanced specification of eeg, we presented preliminary results that were suggestive [12]. Alzheimer's sickness is greater than dementia common reason and alzheimer's most patients with the disease vascular abnormalities suffer from neuritis. Capable of detecting novel blood biomarkers there is an urgent need to develop. Alzheimer's disease diagnosis rates can be improved, personally, professionally and early diagnosis for the community to prevent impacts and progress or risk reduction to delay importance. Initial pathology is able to adapt to changes in disease-modifying agents although not currently available, exposure to common risk factors of the population by adapting the rate of development of dementia can be prevented or delayed [13]. Clinical research of alzheimer's sickness is diagnostic are restricted by means of imprecision. We obviously used it. Identify subjects with see medical inclusion and exclusion criteria. Idiopathic parkinson's disease (pd) additional diagnostic clinical picture neurologist that justifies unless otherwise assumed, extrapyramidal alzheimer's disease with symptoms was compatible with a probable ad. Patients with dementia and pd, dementia compatible with ad preceded by motor symptoms, or doctors as classified think alzheimer's were classified as a probable disease [14].

### 2. MATERIALS & METHODS

*Hypertension:*Blood pressure is vital to the body arteries of the body are blood vessels bleeding against the walls is the power exerted by blood high blood pressure if pressure is too high. Blood pressure is written as two numbers. The first (systolic) number is when the heart contracts or in blood vessels when throbbing indicates pressure. The

second (diastolic) number of heart beats in vessels while in between indicates the pressure in high blood pressure is two different when measured in days, two systolic blood pressure in days measurements  $\geq$ 140 mmhg and/or diastolic blood pressure on both days if readings are  $\geq$ 90 mmhg is detected. High blood pressure a silent killer. Is called high blood pressure most people this unaware of the problem, because it has no warning signs symptoms may also be absent. For this reason, blood pressure is important to measure regularly.

*Myocardial infarction*:Commonly known as a heart attack a myocardial infarction (mi), is a coronary of the heart when blood flow to an artery decreases or occurs when stopped, this causes damage to the heart muscle. Shoulder, arm, back, neck, or chest pain that may travel to the jaw or discomfort is the most common symptom. Most often it is in the center of the chest or occurs on the left side and some last more than minutes. Discomfort sometimes it feels like heartburn. Other symptoms include shortness of breath, nausea, dizziness, cold sweats, or tiredness can feel about 30% of people are different have symptoms. Without frequent chest pain in women, neck pain, arm pain, or fatigue felt in people over 75 years of age, about 5% have little or no symptoms there is an absent mi. An mi heart failure, irregular heartbeat, cardiogenic shock, or heart attack may cause prevention.

Angina pectoris: Climbing hills or stairs during physical activities such as or you have strong emotions more to the heart muscle while having frequent angina when blood is required occurs. As you sit, when oxygen demand is low, severely narrowed arteries in the heart allow sufficient blood to reach, but angina can occur at rest. Angina pectoris is coronary chest pain due to heart disease or a medical term for discomfort. Amount of blood needed by the heart muscle this happens when it is not available. This usually occurs because of the heart one or more of the arteries also known as ischemia.

*Stroke*:Stroke is a medical condition, the worst of which goes to the brain blood flow causes cell death. Ischemic due to lack of blood flow, and bleeding due to bleeding there are two main types. Both are parts of the brain makes it not work properly. Signs and symptoms of stroke move one side of the body inability to perceive, understand or problems speaking, dizziness, or loss of vision on one side are included. A stroke occurred immediately signs and symptoms appear frequently. One of the symptoms of less than two hours if prolonged, the stroke is temporary is an ischemic attack (tia), which is also known as a mini-stroke. A hemorrhagic stroke is severe and may be associated with a headache. Symptoms of a stroke can be permanent. Long-term complications include pneumonia and these include loss of bladder control.

*Chronic obstructive pulmonary disease:*Chronic obstructive pulmonary disease (copd) is a common, preventable, and treatable chronic lung disease, which affects men worldwide and affects women. Of the lungs occurs in small airways abnormalities are also within the lungs controls ventilation outside as well. Many processes cause the airways to narrow causing parts of the lungs destruction, obstruction of mucous airways, inflammation in the respiratory tract and swelling may occur. Copd is sometimes emphysema or that chronic bronchitis is called what is emphysema usually in the lungs small at the end of the airways indicates the destruction of air sacs. Chronic bronchitis is caused by bronchitis chronic with the production of mucus indicates a cough. Copd and common symptoms of asthma share (cough, asphyxiation, and respiration difficulty) and people can have both levels.

Method: The DEMATEL method is a specific problem, pinup binding work through problems and a hierarchical structure contribute to identifying workable solutions structural modeling techniques, for one reason interrelationships between components of the organization identifying dependencies and basic concept of situational relations can affect and influence of elements causal charting uses direction charts. The DEMATEL system is integrated with emergency management together with manage. In the manner proposed, it is not necessary to defuzzify obscure numbers before using the DEMATEL method [15]. Built on the basic principle of DEMATEL, it executes issues by visualization method analyses, and solves. Modeling this structure approach adopts the form of a driven diagram, which is a causal effect for presenting values of influence between interrelated relationships and factors. By analyzing the visual relationship of conditions between systemic factors, all components are a causal group, and the effect is divided into groups. It also provides researchers with structure between system components better understanding of the relationship and complexity for troubleshooting computer problems can find ways [16]. The DEMATEL method effectively calculates the consequences between criteria, which efficiently separates the set of complicated elements right into a sender organization and a recipient institution and transforms it right technique to choosing a management gadget between alternate configurations explicit priority weights come from, in addition, the zogp model allows companies to make full use of limited resources for planning to implement optimal management systems [17]. Therefore, decision-makers need to determine obstacles to the legal framework is strong and make sure it is controllable in order to minimize impact or influence barriers. Therefore, derived from the ism and DEMATEL methods the results are somewhat consistent. Integrated ism DEMATEL results for e-waste management constraints determine not only the structure but also the structure of the interactions between these barriers [18]. Accordingly, the preliminary drawback cluster one became about topics including the comparative weights of selection makers in the DEMATEL approach who did now not well bear in mind linking to the team decision-making. Obviously, in a group decision-making hassle, regular decision-makers can always trust their factor of view and count on it to be prevalent via other selection-makers. This way the very last evaluation guides must be close to their judgments, and if the very last assessment effects are near their critiques, the choice maker is willing to simply accept it; otherwise, they may deny it. It is believed that a significant purpose for the aforementioned discrepancies lies in methods based on unstructured comparisons such as DEMATEL [19]. DEMATEL is widely accepted for analyzing the overall relationship between factors and classifying factors into

cause-and-effect types. Therefore, this article considers each source as a criterion in decision-making. Based on DEMATEL, the significance and level of significance of each piece of evidence can deal with a mixture DEMATEL method with the source theory for better conclusions. In this article, instead of the comparative criteria provided by the experts in DEMATEL [20]. The corresponding propositions between the bodies of sources are changed. The DEMATEL technique was used as well as creating causal relationships between criteria for evaluating the integrated multiple scale decision making (MCDM) outreach personnel program. Integrates DEMATEL and a new clusterweighted system in which dematel system is a company the reason for the complexity between the criteria is to visualize the structure of relationships it is also used to measure the influence of criteria. Buyukozkan and ozturk can integrate anp and DEMATEL an innovation in terms of technology and have developed an approach, which is for companies to help determine important six sigma projects and logistics specifically prioritize these projects helps to identify companies [21].

# 3. RESULT AND DISCUSSION

	Hypertension	Myocardial infarction	Angina pectoris	stroke	Chronic obstructive pulmonary disease	Sum
Hypertension	0	2	4	2	3	11
Myocardial infarction	4	0	2	1	2	9
Angina pectoris	2	1	0	3	1	7
stroke	1	3	2	0	2	8
Chronic obstructive pulmonary disease	2	4	1	3	0	10

Table 1 shows that DEMATEL Hypertension, Myocardial infarction, Angina pectoris, stroke, Chronic obstructive pulmonary disease in this table.



FIGURE 1. Diagnosing Alzheimer's Disease

Figure 1 shows that DEMATEL Decision making trail and Hypertension, Myocardial infarction, Angina pectoris, stroke, Chronic obstructive pulmonary disease. Hypertension it is seen that Myocardial infarction is showing the highest value for stroke is showing the lowest value. Myocardial infarction it is seen that Hypertension is showing the highest value for Angina pectoris is showing the lowest value. Angina pectoris it is seen that Hypertension is showing the highest value for Chronic obstructive pulmonary disease is showing the lowest value. stroke it is seen that Angina pectoris, Chronic obstructive pulmonary disease is showing the highest value for Myocardial infarction is showing the lowest value. Chronic obstructive pulmonary disease it is seen that Hypertension is showing the highest value for Angina pectoris is showing the lowest value.

<b></b>	<b>TABLE 2.</b> Normanzation of direct relation matrix						
	Normaliza	tion of direct re	lation matrix				
HypertensionMyocardial infarctionAngina pectorisstrokeChronic obstructive pulmonary disease							
Hypertension	0	0.181818182	0.36363636	0.181818182	0.272727273		
Myocardial infarction	0.363636364	0	0.18181818	0.090909091	0.181818182		
Angina pectoris	0.181818182	0.090909091	0	0.272727273	0.090909091		
stroke	0.090909091	0.272727273	0.18181818	0	0.181818182		
Chronic obstructive	0.181818182	0.363636364	0.09090909	0.272727273	0		
pulmonary disease							

	TABLE 2.	Normalization	of direct relati	on matrix
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Table 2 shows that the Normalizing of the direct relation matrix in Hypertension, Myocardial infarction, Angina pectoris, stroke, Chronic obstructive pulmonary disease the diagonal value of all the data set is zero.





Figure 2 shows the Normalization of the direct relation matrix it is seen that Hypertension it is seen that Myocardial infarction is showing the highest value for stroke is showing the lowest value.

	Hypertension	Myocardial infarction	Angina pectoris	stroke	Chronic obstructive pulmonary
	_				disease
Hypertension	0	0.181818182	0.363636364	0.181818182	0.27272727
Myocardial infarction	0.363636364	0	0.181818182	0.090909091	0.18181818
Angina pectoris	0.181818182	0.090909091	0	0.272727273	0.09090909
stroke	0.090909091	0.272727273	0.181818182	0	0.18181818
Chronic obstructive	0.181818182	0.363636364	0.090909091	0.272727273	0
pulmonary disease					

**TABLE 3.** Calculate the Total Relation Matrix

Table 3 shows the Diagnosing Alzheimer's Disease is Hypertension, Myocardial infarction, Angina pectoris, stroke, Chronic obstructive pulmonary disease.

**TABLE 4.** T= Y(I-Y)-1, I= Identity matrix

I				
1	0	0	0	0
0	1	0	0	0
0	0	1	0	0
0	0	0	1	0
0	0	0	0	1

Table 4 Shows the T= Y(I-Y)-1, I= Identity matrix in Hypertension, Myocardial infarction, Angina pectoris, stroke, Chronic obstructive pulmonary disease is the common Value.

TABLE 5. Y Value						
	Y					
0	0.181818	0.363636	0.181818	0.272727		
0.363636	0	0.181818	0.090909	0.181818		
0.181818	0.090909	0	0.272727	0.090909		
0.090909	0.272727	0.181818	0	0.181818		
0.181818	0.363636	0.090909	0.272727	0		

Table 5 Shows the Y Value in Diagnosing Alzheimer's Disease is Hypertension, Myocardial infarction, Angina pectoris, stroke, Chronic obstructive pulmonary disease is Calculate the total relation matrix Value and Y Value is the same value.

<b>TABLE 6.</b> I-Y Value					
		I-Y			
1	-0.18182	-0.36364	-0.18182	-0.27273	
-0.36364	1	-0.18182	-0.09091	-0.18182	
-0.18182	-0.09091	1	-0.27273	-0.09091	
-0.09091	-0.27273	-0.18182	1	-0.18182	
-0.18182	-0.36364	-0.09091	-0.27273	1	

Table 6 Shows the I-Y Value in Diagnosing Alzheimer's Disease is Hypertension, Myocardial infarction, Angina pectoris, stroke, Chronic obstructive pulmonary disease table 4 T= Y(I-Y)-1, I= Identity matrix and table 5 Y Value Subtraction Value.

	<b>TABLE 7.</b> (I-Y)-1 Value					
		(I-Y)-1				
1.890832	1.100689	1.168345	1.038156	1.010775		
1.081081	1.837838	0.963964	0.864865	0.873874		
0.749868	0.735559	1.612259	0.81558	0.633104		
0.788553	0.952305	0.832538	1.666137	0.766826		
1.020138	1.195019	0.936584	1.031797	1.768239		

Table 7 shows the (I-Y)-1Value in Diagnosing Alzheimer's Disease is Hypertension, Myocardial infarction, Angina pectoris, stroke, Chronic obstructive pulmonary disease Table 6 shows the Minvers shows used.

	<b>TABLE 8.</b> Total Relation matrix (T)						
		Total	Relation mat	rix (T)		Ri	
	0.890832	1.100689	1.168345	1.038156	1.010775	5.208797	
	1.081081	0.837838	0.963964	0.864865	0.873874	4.621622	
	0.749868	0.735559	0.612259	0.81558	0.633104	3.54637	
	0.788553	0.952305	0.832538	0.666137	0.766826	4.006359	
	1.020138	1.195019	0.936584	1.031797	0.768239	4.951775	
Ci	4.530472	4.82141	4.51369	4.416534	4.052818		

Table 8 shows the Total Relation Matrix (T) the direct relation matrix is multiplied by the inverse of the value that the direct relation matrix is subtracted from the identity matrix.



FIGURE 3. Total Relation matrix (T)

Figure 3. shows the Total Relation Matrix (T) the direct relation matrix is multiplied with the inverse of the value that the direct relation matrix is subtracted from the identity matrix.

<b>TABLE 9.</b> Ri & Ci					
	Ri	Ci			
Hypertension	5.208797	4.530472			
Myocardial infarction	4.621622	4.82141			
Angina pectoris	3.54637	4.51369			
stroke	4.006359	4.416534			
Chronic obstructive pulmonary disease	4.951775	4.052818			

Table 9 shows the Hypertension Ri= 5.208797, Ci=4.530472, Myocardial infarction Ri= 4.621622, Ci=4.82141, Angina pectoris Ri= 3.54637, Ci=4.51369, stroke Ri= 4.006359, Ci=4.416534, Chronic obstructive pulmonary disease Ri= 4.951775, Ci=4.052818.

Manjula et.al /Data Analytics and Artificial Intelligence 2(1) 2023, 32-43



Table 4 shows the graphical representation Hypertension it is seen that Ri is showing the highest value for Ci is showing the lowest value. Myocardial infarction it is seen that Ci is showing the highest value for Ri is showing the lowest value. Angina pectoris it is seen that Ci is showing the highest value for Ri is showing the lowest value. stroke it is seen that Ri is showing the highest value for Ci is showing the lowest value. Chronic obstructive pulmonary disease it is seen that Ri is showing the highest value for Ci is showing the lowest value.

	Ri+Ci	Ri-Ci	Rank	Identity	
Hypertension	9.739269	0.678325	1	cause	
Myocardial infarction	9.443031	-0.19979	2	effect	
Angina pectoris	8.06006	-0.96732	5	effect	
stroke	8.422893	-0.41017	4	effect	
Chronic obstructive pulmonary disease	9.004593	0.898958	3	cause	

TABLE 10. Calculation of Ri+Ci and Ri-Ci To Get The Cause And Effect

Table 10 shows the Calculation of Ri+Ci and Ri-Ci to Get the Cause and Effect. the final result of this paper the Hypertensionis in  $1^{st}$  rank cause, Myocardial infarction is in  $2^{nd}$  rank effect, Angina pectorisis in  $5^{th}$  rank effect, stroke is in  $4^{th}$  rank effect and Chronic obstructive pulmonary disease is in  $3^{rd}$  rank cause. The final result is done by using the DEMATEL method.



#### FIGURE 5. Rank

Table 10 shows the Calculation of Ri+Ci and Ri-Ci to Get the Cause and Effect. the final result of this paper the Hypertensionis in First rank cause, Myocardial infarction is in Second rank effect, Angina pectorisis in Fifth rank effect, strokeis in Fourth rank effect and Chronic obstructive pulmonary disease is in Third rank cause.

TABLE 11.T matrix				
T matrix				
0.890832	1.100689	1.168345	1.038156	1.010775
1.081081	0.837838	0.963964	0.864865	0.873874
0.749868	0.735559	0.612259	0.81558	0.633104
0.788553	0.952305	0.832538	0.666137	0.766826
1.020138	1.195019	0.936584	1.031797	0.768239

Table 11. Shows the T matrix calculate the average of the matrix and its threshold value (alpha) Alpha 0.893396926 If the T matrix value is grater than threshold value then bold it

#### 4. CONCLUSION

Alzheimer's disease per person is a single determinant of whether or not there is currently a diagnostic test. The diagnostic process usually takes over the day and prime such as a doctor or neurologist includes other professionals. Alzheimer's is so much for dementia common cause, which is thinking, behavioral and social skills continuous decline, it's a person's ability to work independently affects. A neurological disorder, it is mental alzheimer's disease is a novel degeneracy that shrinks brain cells it also causes death. Alzheimer's is so much for dementia common cause, which is thinking, behavioral and social skills continuous decline, it's a person's ability to work independently affects. 65 in us and more than 5.8 years of age millions of people have alzheimer's living with the disease. Among them 80% are 75 years and older more than with dementia about 50 million worldwide in the population, 60% to 70% of alzheimer's disease is estimated. The onset of the disease is recent events in symptoms or includes forgetting conversations. As the disease progresses, alzheimer's disease sufferers have acute memory loss impairment and daily tasks will lose the ability to do. Medications improve symptoms and can upgrade temporarily or let's slow down. Some of these treatments sometimes with alzheimer's disease activity for victims increase and freedom for a while it also helps in maintenance. Alzheimer's disease victims and their caregivers are also diverse programs and services that can help. Cures disease or disease in the brain any treatment that alters the process no. In advanced stages of the disease, dehydration, malnutrition, or of brain activity such as infection complications from severe loss resulting in death. Your doctor is a physical experiment and does many tests will conduct alzheimer's diagnosis other for support or indications to rule out possible causes, like the positron get a brain scan. Alzheimer's is a variety of dementia find out in ways. Mostly, alzheimer's through a doctor's examination is detected. They are yours assess signs and symptoms they will do many tests. More about symptoms and behavior know they are friends and talk to family members. The most common form of dementia accurate diagnosis of type alzheimer's getting is important. Correct diagnosis, proper treatment, care, family education and to get plans for the future an important first steps. Memory, thought, language, judgment, and behavior of brain activity affecting loss, alzheimer's disease to dementia a very common cause. In alzheimer's disease, a large number of neurons stop working, and other neurons lose connections and die. Irreversible and progressive, alzheimer's disease slows memory and destroys thinking skills, and eventually, the simplicity of everyday life destroys the ability to perform tasks.

#### REFERENCES

- [1]. Humpel, Christian. "Identifying and validating biomarkers for Alzheimer's disease." Trends in biotechnology 29, no. 1 (2011): 26-32.
- [2]. Joachim, C. L., J. H. Morris, and D. J. Selkoe. "Clinically diagnosed Alzheimer's disease: autopsy results in 150 cases." Annals of Neurology: Official Journal of the American Neurological Association and the Child Neurology Society 24, no. 1 (1988): 50-56.
- [3]. Albert, Marilyn, Laurel A. Smith, Paul A. Scherr, James O. Taylor, Denis A. Evans, and H. Harris Funkenstein. "Use of brief cognitive tests to identify individuals in the community with clinically diagnosed Alzheimer's disease." International journal of Neuroscience 57, no. 3-4 (1991): 167-178.
- [4]. Zhang, Yi, Elisabet Londos, Lennart Minthon, Carina Wattmo, Huaijun Liu, Peter Aspelin, and L-O. Wahlund. "Usefulness of computed tomography linear measurements in diagnosing Alzheimer's disease." Acta radiologica 49, no. 1 (2008): 91-97.

- [5]. Dorey, Aline, Armand Perret-Liaudet, Yannick Tholance, Anthony Fourier, and Isabelle Quadrio. "Cerebrospinal fluid Aβ40 improves the interpretation of Aβ42 concentration for diagnosing Alzheimer's disease." Frontiers in Neurology 6 (2015): 247.
- [6]. Handels, Ron LH, Claire AG Wolfs, Pauline Aalten, Manuela A. Joore, Frans RJ Verhey, and Johan L. Severens. "Diagnosing Alzheimer's disease: a systematic review of economic evaluations." Alzheimer's & Dementia 10, no. 2 (2014): 225-237.
- [7]. Lee, Moonhee, Jian-Ping Guo, Krista Kennedy, Edith G. McGeer, and Patrick L. McGeer. "A method for diagnosing Alzheimer's disease based on salivary amyloid-β protein 42 levels." Journal of Alzheimer's Disease 55, no. 3 (2017): 1175-1182.
- [8]. Jung, Chau-Ren, Yu-Ting Lin, and Bing-Fang Hwang. "Ozone, particulate matter, and newly diagnosed Alzheimer's disease: a population-based cohort study in Taiwan." Journal of Alzheimer's Disease 44, no. 2 (2015): 573-584.
- [9]. Rodrigues, Pedro M., Bruno C. Bispo, Carolina Garrett, Dílio Alves, Joao P. Teixeira, and Diamantino Freitas. "Lacsogram: A new EEG tool to diagnose Alzheimer's disease." IEEE Journal of Biomedical and Health Informatics 25, no. 9 (2021): 3384-3395.
- [10]. Kunkle, Brian W., Benjamin Grenier-Boley, Rebecca Sims, Joshua C. Bis, Vincent Damotte, Adam C. Naj, Anne Boland et al. "Genetic meta-analysis of diagnosed Alzheimer's disease identifies new risk loci and implicates Aβ, tau, immunity and lipid processing." Nature genetics 51, no. 3 (2019): 414-430.
- [11]. Lahmiri, Salim, and Amir Shmuel. "Performance of machine learning methods applied to structural MRI and ADAS cognitive scores in diagnosing Alzheimer's disease." Biomedical Signal Processing and Control 52 (2019): 414-419.
- [12]. Schmand, Ben, Piet Eikelenboom, Willem A. Van Gool, and Alzheimer's Disease Neuroimaging Initiative. "Value of neuropsychological tests, neuroimaging, and biomarkers for diagnosing Alzheimer's disease in younger and older age cohorts." Journal of the American Geriatrics Society 59, no. 9 (2011): 1705-1710.
- [13]. Park, Jung Eun, Do Sung Lim, Yeong Hee Cho, Kyu Yeong Choi, Jang Jae Lee, Byeong C. Kim, Kun Ho Lee, and Jung Sup Lee. "Plasma contact factors as novel biomarkers for diagnosing Alzheimer's disease." Biomarker research 9, no. 1 (2021): 1-8.
- [14]. Rathor, Ketan, Keyur Patil, Mandiga Sahasra Sai Tarun, Shashwat Nikam, Devanshi Patel, and Sasanapuri Ranjit. "A Novel and Efficient Method to Detect the Face Coverings to Ensure the Safety using Comparison Analysis." In 2022 International Conference on Edge Computing and Applications (ICECAA), pp. 1664-1667. IEEE, 2022.
- [15]. Bharathi, Pon, M. Ramachandran, Kurinjimalar Ramu, and Sathiyaraj Chinnasamy. "A study on various particle swarm optimization techniques used in current scenario." *Des. Model. Fabr. Adv. Robot* 1 (2022): 15-26.
- [16]. Morris, John C., Daniel W. McKeel Jr, Keith Fulling, Richard M. Torack, and Leonard Berg. "Validation of clinical diagnostic criteria for Alzheimer's disease." Annals of Neurology: Official Journal of the American Neurological Association and the Child Neurology Society 24, no. 1 (1988): 17-22.
- [17]. Lee, Wen-Shiung, Alex YiHou Huang, Yong-Yang Chang, and Chiao-Ming Cheng. "Analysis of decision making factors for equity investment by DEMATEL and Analytic Network Process." Expert Systems with Applications 38, no. 7 (2011): 8375-8383.
- [18]. Kumar, Ashish, Ketan Rathor, Snehit Vaddi, Devanshi Patel, Preethi Vanjarapu, and Manichandra Maddi. "ECG Based Early Heart Attack Prediction Using Neural Networks." In 2022 3rd International Conference on Electronics and Sustainable Communication Systems (ICESC), pp. 1080-1083. IEEE, 2022.
- [19]. Selvi, S. Annal Ezhil, and R. Anbuselvi. "An Analysis of Data Replication Issues and Strategies on Cloud Storage System." In International Journal of Engineering Research & Technology (IJERT), NCICN-2015 Conference Proceedings, pp18-21. 2015.
- [20]. Gayathri, B. "Gray Wolf Optimisation Based Energy Efficient Green Cloud Computing." Journal of Algebraic Statistics 13, no. 1 (2022): 932-940.
- [21]. Shanmugasundar, G., A. Jai Krishna, M. Harish, P. Yuan Shankar, R. Anbarasan, and M. Muneeswaran. "Design and Analysis of Automobile Pedal with Combined Brake and Accelerator."
- [22]. Tsai, Wen-Hsien, and Wen-Chin Chou. "Selecting management systems for sustainable development in SMEs: A novel hybrid model based on DEMATEL, ANP, and ZOGP." Expert systems with applications 36, no. 2 (2009): 1444-1458.
- [23]. Kumar, Ashwani, and Gaurav Dixit. "An analysis of barriers affecting the implementation of e-waste management practices in India: A novel ISM-DEMATEL approach." Sustainable Production and Consumption 14 (2018): 36-52.
- [24]. Bharathi, Pon, M. Ramachandran, Kurinjimalar Ramu, and Sathiyaraj Chinnasamy. "A study on various particle swarm optimization techniques used in current scenario." *Des. Model. Fabr. Adv. Robot* 1 (2022): 15-26.
- [25]. Anbuselvi, R. "Holistic approach for green cloud computing and environmental sustainability." *International Journal* 5, no. 3 (2015).

- [26]. Manjunath, C. R., Ketan Rathor, Nandini Kulkarni, Prashant Pandurang Patil, Manoj S. Patil, and Jasdeep Singh. "Cloud Based DDOS Attack Detection Using Machine Learning Architectures: Understanding the Potential for Scientific Applications." *International Journal of Intelligent Systems and Applications in Engineering* 10, no. 2s (2022): 268-271.
- [27]. Venkatachalam, Gopalan, Arunkumar Gopu, Pitchumani Shenbaga Velu, Neelanarayanan Venkataraman, Dinesh Ramesh Salunke, and Raghava Rao Mukkamala. "Study on Tensile Properties of Fly Ash, Sugarcane Fiber and Carbon Nanotube-Reinforced Polymer Matrix Composite Using Objective Evolutionary Algorithm." *Nanomaterials* 12, no. 23 (2022): 4112.
- [28]. Si, Sheng-Li, Xiao-Yue You, Hu-Chen Liu, and Ping Zhang. "DEMATEL technique: A systematic review of the state-of-the-art literature on methodologies and applications." Mathematical Problems in Engineering 2018 (2018).
- [29]. Gopu, Arunkumar, Neelanarayanan Venkataraman, and M. Nalini. "Toward the Internet of Things and Its Applications: A Review on Recent Innovations and Challenges." *Cognitive Computing for Internet of Medical Things* (2022): 1-21.
- [30]. Yazdi, Mohammad, Faisal Khan, RouzbehAbbassi, and RiszaRusli. "Improved DEMATEL methodology for effective safety management decision-making." Safety science 127 (2020): 104705.
- [31]. Reddy, G. Vinoda, Kavitha Thandapani, N. C. Sendhilkumar, C. Senthilkumar, S. V. Hemanth, S. Manthandi Periannasamy, and D. Hemanand. "Optimizing QoS-based clustering using a multi-hop with single cluster communication for efficient packet routing." *International Journal of Electrical and Electronics Research* 10, no. 2 (2022): 69-73.
- [32]. Chaudhari, Sachin Vasant, M. Dhipa, Shahnawaz Ayoub, B. Gayathri, M. Siva, and V. Banupriya. "Modified Aquila optimization based route planning model for unmanned aerial vehicles networks." In 2022 international conference on automation, computing and renewable systems (ICACRS), pp. 370-375. IEEE, 2022.
- [33]. Shanmugasundar, G., R. Yokesh, S. Yuvaranjith, R. Barath, and S. Balasubramanian. "Design and Fabrication of Intelligent Gas Stove for Indian Women Safety." *International Journal of Pharmaceutical Research* (09752366) 12, no. 2 (2020).
- [34]. Janhavi Chaidhanya G, M. Ramachandran, Kurinjimalar Ramu, Ashwini Murugan, "Understanding the Performance of Micro and Small Entrepreneurs by (COPRAS)", REST Journal on Data Analytics and Artificial Intelligence, 1(2), (2022):33-40.
- [35]. Nalini, M., A. Prasanth, Arunkumar Gopu, and D. Lakshmi. "Introduction to Cognitive Computing." In *Cognitive Computing for Internet of Medical Things*, pp. 23-44. Chapman and Hall/CRC, 2022.
- [36]. Selvi, S. Annal Ezhil, and R. Anbuselvi. "RAAES: reliability-assured and availability-enhanced storage for cloud environment." *International Journal of Pure and Applied Mathematics* 118, no. 9 (2018): 103-112.
- [37]. Rathor, Ketan, Sushant Lenka, Kartik A. Pandya, B. S. Gokulakrishna, Susheel Sriram Ananthan, and Zoheib Tufail Khan. "A Detailed View on industrial Safety and Health Analytics using Machine Learning Hybrid Ensemble Techniques." In 2022 International Conference on Edge Computing and Applications (ICECAA), pp. 1166-1169. IEEE, 2022.
- [38]. Ramasubramanian, B., K. Elangovan, D. Hemaanand, and K. Kavin Kumar. "A Comprehensive Analysis of Various Delineation method for Exudates in Fundus Images using Miniaturized Pi Board." In *Journal of Physics: Conference Series*, vol. 2466, no. 1, p. 012021. IOP Publishing, 2023.
- [39]. Zhang, Weiquan, and Yong Deng. "Combining conflicting evidence using the DEMATEL method." Soft computing 23, no. 17 (2019): 8207-8216.
- [40]. Jayalakshmi VA, M. Ramachandran, Chandrasekar Raja, Prabakaran Nanjundan, "Investigating Human Resource Practice in a Major Company Using GRA Method", REST Journal on Data Analytics and Artificial Intelligence, 1(2), (2022):15-23.
- [41]. Jayalakshmi, D. S., D. Hemanand, C. Manjula, and K. Chitra. "Development of solid state sensor by using CuMoO4–CuO and electronic circuit for digital display of humidity." J. Chem. Pharmaceut. Sci 9 (2016): 3021-3026.
- [42]. Rathor, Ketan, Anshul Mandawat, Kartik A. Pandya, Bhanu Teja, Falak Khan, and Zoheib Tufail Khan. "Management of Shipment Content using Novel Practices of Supply Chain Management and Big Data Analytics." In 2022 International Conference on Augmented Intelligence and Sustainable Systems (ICAISS), pp. 884-887. IEEE, 2022.
- [43]. Lee, Hsuan-Shih, Gwo-HshiungTzeng, WeichungYeih, Yu-Jie Wang, and Shing-Chih Yang. "Revised DEMATEL: resolving the infeasibility of DEMATEL." Applied Mathematical Modelling 37, no. 10-11 (2013): 6746-6757.
- [44]. Krishna, S. Rama, Ketan Rathor, Jarabala Ranga, Anita Soni, D. Srinivas, and Anil Kumar. "Artificial Intelligence Integrated with Big Data Analytics for Enhanced Marketing." In 2023 International Conference on Inventive Computation Technologies (ICICT), pp. 1073-1077. IEEE, 2023.
- [45]. Suresh Kumar, S., Martin Margala, S. Siva Shankar, and Prasun Chakrabarti. "A novel weight-optimized LSTM for dynamic pricing solutions in e-commerce platforms based on customer buying behaviour." *Soft Computing* (2023): 1-13.

- [46]. Selvi, S. Annal Ezhil, and Dr R. Anbuselvi. "Ranking Algorithm Based on File's Accessing Frequency for Cloud Storage System." International Journal of Advanced Research Trends in Engineering and Technology (IJARTET) Vol 4 (2017).
- [47]. Jayalakshmi, D. S., D. Hemanand, and Helen Merina Albert. "Insulator-metal phase transition in novel Sr2OsTiO6 double perovskite via doping-Computational FP study." *Computational Condensed Matter* 33 (2022): e00732.
- [48]. Asifulla A, M. Vijayakumar, M. Ramachandran, Prabakaran Nanjundan, "Analysis of Enterprise Resource Planning system using VIKOR Method", REST Journal on Data Analytics and Artificial Intelligence, 1(2), (2022):1-6.
- [49]. Selvi, S., and R. Anbuselvix. "OPTIMIZING THE STORAGE SPACE AND COST WITH RELIABILITY ASSURANCE BY REPLICA REDUCTION ON CLOUD STORAGE SYSTEM." *International Journal of Advanced Research in Computer Science* 8, no. 8 (2017).
- [50]. Minu, R. I., Martin Margala, S. Siva Shankar, Prasun Chakrabarti, and G. Nagarajan. "Early-stage esophageal cancer detection using hybrid quantum CNN." *Soft Computing* (2023): 1-6.
- [51]. Ruhiya Nazneen, M Ramachandran, Chinnasami Sivaji, Ashwini Murugan, "Understanding the behavior of Bancassurance service in India", REST Journal on Data Analytics and Artificial Intelligence, 1(2), (2022): 7-14.