

Pathological Evaluation of Autoimmune Disorders in Brazilian Population. A Retrospective Analysis

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ABSTRACT

There is a lack of epidemiological information about autoimmune diseases in Brazil since there isn't a specific plan in place for them. This study aimed to ascertain the overall and relative prevalence of the infections stated and the sociodemographic composition of the cases that were discovered related to the pathological evaluation. For this cross-sectional investigation, an epidemiological survey was conducted among primary healthcare providers in the Aguas Formosas microregion of Minas Gerais, Brazil, who had confirmed diagnoses of autoimmune disorders. Every incidence, past and present, involving individuals of all ages and genders, including those who left and immigrated during this period, has been covered. There were discovered to be 24 different autoimmune diseases and 407 carriers. The majority of those affected were over 60 (30.5%), and women were more likely to be affected than men (69%), with a higher concentration in metropolitan areas (81.3%). With the use of our data, we were able to ascertain the sociodemographic makeup of the cases that were found, as well as the epidemiological progression of these morbidities in a low-income Brazilian region. The overall result found a direct and significant link between pathological evaluation of autoimmune disorders in a Brazilian population. Additionally, it illustrated the relative and overall prevalence of the diseases found.

Keywords: Pathological Evaluation (PE), Autoimmune Disorders (AD), Brazilian Population (BP), Retrospective Analysis (RA)

INTRODUCTION

The word autoimmune disorders refer to such disorders in the body in which the body reacts in such a way that it attacks its cells of the body. Any kind of mistake occurs in the body that disturbs the immune system in such a way that it attacks its cells, tissues, or organs. There are many important examples of autoimmune disorders, such as rheumatoid arthritis, Hashimoto's thyroiditis, type 1 diabetes, multiple sclerosis, vitiligo, and others. There are a variety of causes of autoimmune disorders such as genetic basis, environmental factors, hormonal imbalance, immune system dysfunction, and others [1]. In this research, we are going to discuss the pathological evaluation of autoimmune disorders in the Brazilian population. In recent years, epidemiological studies have taught us some important aspects of autoimmune disorders in the Brazilian population. It has been seen that almost ten percent of the whole population of Brazil has been affected by autoimmune disorders. The other aspect has also been seen, that there is a higher incidence rate of autoimmune disorders in urban areas as compared to the incidence rate in rural areas. If we talk about the rate of autoimmune disorders on a gender basis, it has been proved that there is a higher incidence rate of autoimmune disorders in females as compared to the male population[2]. The factor of age isn't also related to autoimmune disorders in such a way that those people who are between the ages of forty and sixty are more prone to autoimmune disorders as compared to other populations. Epidemiological studies have also observed that regional disparity factors are also included in the relevance of autoimmune disorders. It has been mentioned that people living in the southern region of Brazil are more prone to autoimmune disorders as compared to those people who are living in the northern region of Brazil[3]. This aspect explains that many factors are involved in causing autoimmune disorders in the Brazilian population, which can be studied by pathological

evaluation of these autoimmune disorders. The most common autoimmune disorders in the Brazilian population are rheumatoid arthritis, Hashimoto's thyroiditis, type 1 diabetes, multiple sclerosis, and others. Suppose we discuss the causes of rheumatoid arthritis in the Brazilian population. In that case, we will come to know that there is a sum of genetic, environmental, lifestyle, and socioeconomic factors that can cause rheumatoid arthritis. The genetic factors include a family history of arthritis. The environmental factors that can cause rheumatoid arthritis include air pollution, smoking, viral infection, ultraviolet radiation, hormonal imbalances such as menopause, and others. The lifestyle factors include a sedentary lifestyle, obesity, stress, unhealthy diet, and others[4]. The socioeconomic factors that can cause rheumatoid arthritis include low income, low education level, limited Access to healthcare sectors, and others. It has been seen that rheumatoid arthritis is more common in females as compared to males because of more hormonal imbalance after menopause. Studies also show that there is more use of pesticides in Brazil, which can pollute the environment and cause rheumatoid arthritis. The other important autoimmune disorder in the Brazilian population is Hashimoto's thyroiditis. This disease is mostly referred to as a type of autoimmune disorder in which the thyroid gland is mostly affected by it. The environmental factors that can cause this autoimmune disorder in the Brazilian population are deficiency of iodine, selenium deficiency, exposure to pesticides and heavy metals, radiation, infections, and others[5]. The main symptoms of this autoimmune disorder are fatigue, weight gain, hair loss, cold intolerance, dry skin, constipation, depression, and irregular menstrual cycles. There are a variety of tests that can be used to diagnose this autoimmune disorder. These tests are thyroid function test, thyroid antibody test, CT scan, fine needle aspiration biopsy, and others. It has been

proved that this autoimmune disorder is also more common in females as compared to males at the ratio of seven to one, respectively. The treatment for this autoimmune disorder includes thyroid hormone replacement therapy, modification of lifestyle, avoiding any triggers, monitoring thyroid function regularly, and others[6]. The other important type of autoimmune disorder that is mostly common in the Brazilian population is type 1 diabetes. As we know, some important cells in the pancreas function to produce insulin in the body, and these cells are called beta cells. In type 1 diabetes, a destructive immune response in the body destroys the beta cells in the pancreas, thus affecting the normal production of insulin in the body. If we talk about the main reasons for type 1 diabetes, we will come to know that there are various reasons for it. The first reason is the viral infection in the body, which can cause type 1 diabetes. The other reason is the consumption of cow milk in childhood. The other reason is a deficiency of vitamin D[7]. The next reason for causing type 1 diabetes is exposure to toxins such as pesticides and heavy metals. In the Brazilian population, type 1 diabetes is more common in the southern population than in the northern population because of various factors. In the southern population, there is more urbanization and a sedentary lifestyle, which can cause type 1 diabetes. Infectious type 1 diabetes is more common in the southern population, as proven by epidemiological studies[8]. The important symptoms of this autoimmune disorder are increased thirst and urination, weight loss, fatigue, blurred vision, wounds that do not heal, and others. This autoimmune disorder can easily be diagnosed by fasting glucose test, oral glucose tolerance test, autoantibody test, insulin level test, and others. The treatment for this autoimmune disorder includes insulin therapy, glucose monitoring, healthy diet and exercise, improving lifestyle, and others[9]. All of these aspects have convinced us that the level of autoimmune disorders has been increasing in the Brazilian population, which is dependent upon many factors. There is a need to adopt such preventive measures that can reduce this alarming level of autoimmune disorders in the Brazilian population[10].

Research Objective

The main objective of this research is to understand the pathological evaluation of autoimmune disorders in the Brazilian population. This study has effectively explained different autoimmune disorders and their treatments in a Brazilian population. The research study determines the Pathological Evaluation of Autoimmune Disorders in Brazilian Populations. The research paper is divided into five specific research chapters. The first portion represents an introduction related to variables and explains the research's objective. The second section explains the literature review, the third portion describes the methodology, and techniques related to them. The fourth section explains and interprets the results and their descriptions. The last portion summarized the overall research study and explained recommendations for the Pathological Evaluation of Autoimmune Disorders in Brazilian Populations.

LITERATURE REVIEW

Researchers claim that details related to the autoimmune disorders prevalent in Brazil are limited. Clinical physicians face

many problems in determining the oral lesions problems in Brazilian people. the management of autoimmune disorders that cause oral lesions is done at large clinical-based pathology labs[4]. Studies reveal that multiple factors cause certain diseases like CD as well as UC these diseases are categorized as bowel syndrome, and their prevalence rate is increasing rapidly in most of the developing states. In Brazil, epidemiological studies on IBD patients are made using well-developed clinical methodologies[11]. studies show that clinical processes were performed on the pediatric population of Brazil to identify histopathological diseases. The oral pathology lab in Brazil is used to perform diagnostic trials. The occurrence rate of any autoimmune disorder in Brazilians was estimated using the relative frequency method[12]. studies suggest that AIE is an autoimmune disorder that is prevalent in different forms in different populations. also, the antibodies in cases of AIE are produced differently in diverse populations. in developing countries, the data related to the occurrence of AIE is limited. Brain is a Brazilian clinical pathology center that provides clinical data related to the AIE[13]. studies reveal that the patients of PSC when undergoing liver transplantation, have an increased risk of disease complications. Various clinical tests are performed on PSC patients undergoing liver transplants to determine the survival rates in patients after transplantation[14]. Studies explain that the similarity between AIH and DILI autoimmune disorder is because of the similar histological features these disorders exhibit. special drugs have been developed to prevent the DILI condition from getting worsen. also, the outcome of drugs on patient health condition is assessed through clinical practices that help indicate its effectiveness[15]. studies suggest that different methodologies have been adopted to assess the relative frequency of ILDs. the incident rate of this disorder is easily determined using the relative frequency in Brazil. the treatment or clinical suggestion given by international MDD is regarded as the only strategy for ILD treatment[16]. Studies show that the population of Brazil is a mix of people from various states around the world. The incidence rate of LN in Brazil varies. the symptoms severity and disorder complexity of LN also vary from one patient to another. immunological studies were made on LN in Brazil to identify the profile of the disease and to suggest possible treatment for it[17]. Studies predict that Portugal's population comprises a large number of migrants. The possibility of these migrants suffering from any autoimmune disorder is higher. In Portuguese hospitals, asymptomatic migrants are tested to identify any disease that could lead to endemic conditions [18]. Studies suggest that radiological studies have found the incidence rate of hepatic lymphoma. the diagnosing methods recently developed against hepatic lymphoma are more challenging. The images of the hepatic system of diseased patients taken from radiological studies identify the prognostic features related to this disease[19]. studies show that the number of women affected with breast cancer around the world varies. the rate at which women are getting affected with breast cancer is much higher in developing countries than in developed countries. Retro-perspective cohort studies were made in Brazil on women with breast cancer to diagnose the young female affected with breast cancer[20]. Studies reveal that the effectiveness of treatment is very low for pancreatic adenocarcinoma as it is a very complicated disorder. the dysfunction of the immune system is

observed in patients with this disorder. also, the chances of tumour development in pancreatic adenocarcinoma are higher due to the activation of the immunoinhibition pathways[21]. Studies claim that diseases related to the immune system mainly affect a person's CNS. The understanding of neurological syndromes is made through clinical studies to develop rheumatological therapies. by studying CNS regulation in disease patrons, effective treatment against autoimmune diseases is developed[22]. Studies explain that the role of IgG4-RD in gastro-related immune disease laboratories can develop medication for its treatment. IgG4-RD is a chronically harmful disorder as it causes organ inflammation. The histopathological studies on this chronic disorder reveal that its treatment process is highly complex and challenging[23]. Studies predict that in Brazil, medical reference centres have been developed to get information regarding the required treatment for a specific immune disorder. the study data from the Brazil Pathological Center reveal that IUT transfusion given for the Rh alloimmunization process causes some serious complications. the most common is bleeding after the transfusion .theses complications result in the death of a person when proper medical treatment is not provided to the patient[24] Moreover, the Brazilian society working on histopathological studies of various immune disorders is the second organization that provides LN treatment services.

The Brazilian rheumatology centre is specially built to deal with LN patients [25]. Clinical research was conducted in Brazil to understand the autoimmune factors responsible for causing IP. The diagnosis of IP by clinicians suggests that it causes severity in patients, which results in fibrosis formation[26].scholar studies reveal that Brazilian institutes of pathology work by providing clinicians with research-based pieces of evidence regarding the onset of any type of cancer. the molecular data regarding the bladder's cancer helps manage the patient's condition. the main aim of the formulation of the Brazilian Pathology Society is to provide recommendations to patients and physicians for efficiently tackling any disorder condition at an early stage[27].scholars reveal that the membrane of the brain gets damaged during a disease condition known as encephalitis. This damage results in inflammation around the CNS. The enolase isoenzyme plays an important role in predicting the origin of a disorder associated with the brain. the monitoring of any defect of the brain and tumour formation is identified through the level of this enzyme[28].studies elaborate that sometimes liver inflammation is a sign of autoimmune hepatitis. the symptoms that appear in people due to liver inflammations in hepatitis disease vary from chronic to acute. The acute inflammation is responsible for liver failure that medications cannot cure and thus requires transplantation Also, certain abnormalities caused during hepatitis provide information regarding the mode of treatment that needs to be adopted for hepatitis treatment[29].

Methodology

The research study determines the Pathological Evaluation of Autoimmune Disorders in Brazilian Populations. The research was based on primary data analysis to determine whether it used SPSS software and generated informative results, including descriptive statistics, the correlation coefficient analysis that explains the

ANOVA test analysis, and the control chart that explains the variance analysis between them. The increasing level of autoimmune disorders in Brazil has attracted the attention of healthcare sectors across the world. It has been observed that various factors are causing the increased level of autoimmune disorders in the Brazilian population. It has also been noted that these autoimmune disorders are more common in urban areas as compared to rural areas. There are different types of autoimmune disorders such as rheumatoid arthritis, type 1 diabetes, multiple sclerosis, vitiligo, and others. When pathological evaluation of autoimmune disorders in the Brazilian population was done, the following important implications were seen by this evaluation:

Clinical Implications

The pathological evaluation of autoimmune disorders in the Brazilian population has benefited us in clinical aspects in many ways. The first benefit is the diagnosis and classification of autoimmune disorders. As we know, a variety of autoimmune disorders have different symptoms and particular treatments. The other aspect is that all types of autoimmune disorders affect the immune system of the body, which can be fatal in very little time. So, diagnosing all of these autoimmune disorders in the initial stage is mandatory so that the treatment can become easy.

This pathological evaluation of autoimmune disorders in the Brazilian population has provided us with information related to the susceptibility of the population to these autoimmune disorders. In this way, with proper and regular screening tests, these autoimmune disorders can be diagnosed very early, making it possible to treat them. Secondly, it is very important to classify these autoimmune disorders because each type of autoimmune disorder has a different way of treatment. It is very important to classify these autoimmune disorders so that treatment can be provided at the initial stage. The pathological evaluation of autoimmune disorders in the Brazilian population has benefited us in that it helped to classify these autoimmune disorders. The other important clinical implication of pathological evaluation of autoimmune disorders in the Brazilian population is the aspect of monitoring the response of treatment in the body. This is not enough to diagnose and classify autoimmune disorders; it is also important to provide timely treatment for them.

After providing treatment, it is mandatory to monitor the body's response to this treatment. It will help healthcare professionals to understand the efficiency of treatments in the human body. If a treatment is not providing a positive response in the human body, that treatment must be altered with another effective treatment. The other important clinical implication of pathological evaluation in the Brazilian population is the identification of potential biomarkers for diagnosing autoimmune disorders. As we know, these days, autoimmune disorders are identified with the help of biomarkers, and these Biomarkers have different potential. So, the accurate potential of these Biomarkers for diagnosis of autoimmune disorders can easily be assessed by pathological evaluation of autoimmune disorders in the Brazilian population. The pathological evaluation of autoimmune disorders in the Brazilian population may also help in the aspect of a personalized medicine approach for swift and accessible treatment in case of autoimmune disorders (Figure 1).

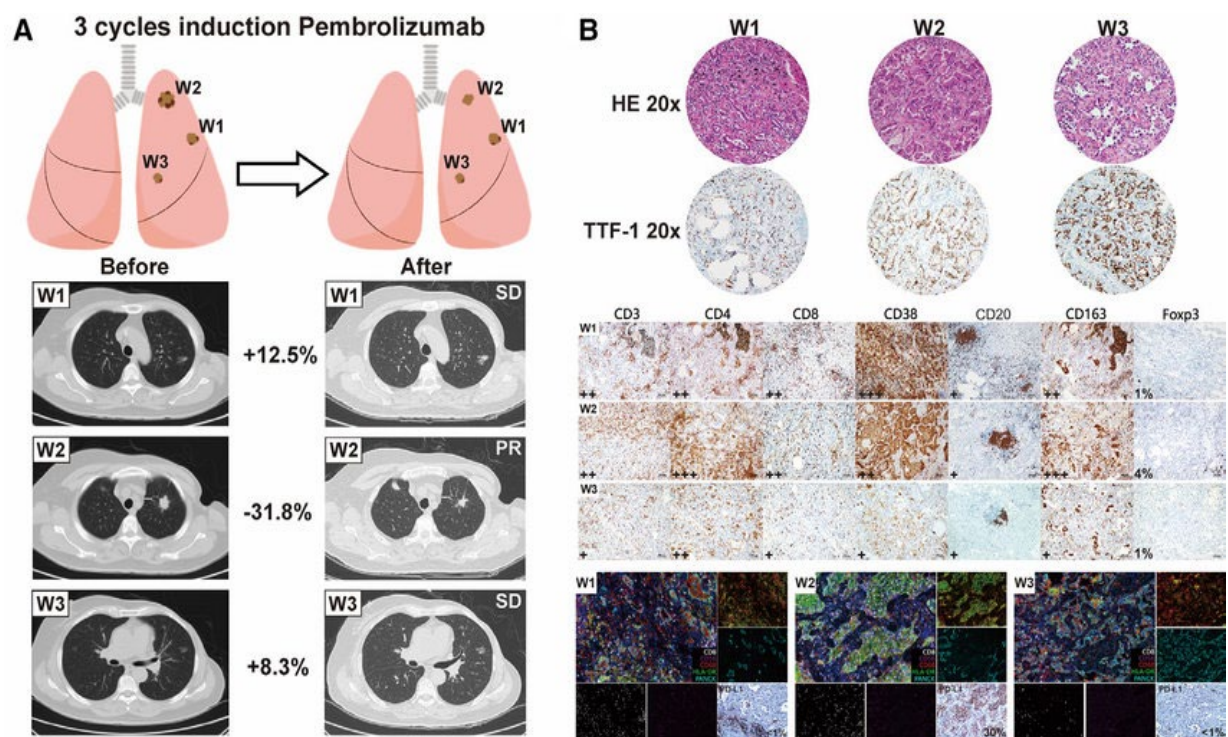


Figure 1: Pathological Evaluation

Implications Related to Research

The pathological evaluation of autoimmune disorders in the Brazilian population also benefits the research field. The first and foremost implication of pathological evaluation of autoimmune disorders in the Brazilian population is the investigation of genetics and environmental factors that can cause autoimmune disorders. As we know, there are a variety of reasons for autoimmune disorders. When reasons related to genetics and environmental factors are studied with the help of pathological evaluation, The treatment of autoimmune disorders can become easy. This aspect can also help formulate preventive policies against autoimmune disorders. If environmental factors cause these autoimmune disorders, these Diseases can be prevented easily by taking preventive measures. For example, it has been mentioned that autoimmune disorders are more common in the southern part of the Brazilian population as compared to the Northern population of Brazil. This means that there are destructive environmental factors in southern Brazil that cause more autoimmune disorders. This information has been gained by pathological evaluation of autoimmune disorders in a Brazilian population. The other research implication of pathological evaluation in the Brazilian population is the aspect of Understanding the mechanism of disease. As we know, all autoimmune disorders affect the immune system of the human body, but the mechanism of pathogenicity is different in the case of all autoimmune disorders. The main benefit of pathological evaluation of autoimmune disorders is that it can help understand the mechanism of action of these pathogens in the body to cause

autoimmune disorders. The other implication of pathological evaluation of autoimmune disorders in the Brazilian population is that it can help in epidemiological Studies. For example, if there is a disease outbreak in one area, we must know whether it can spread to other areas. Epidemiological Studies can understand this aspect. So, the benefit of pathological evaluation of autoimmune disorders is that it also gives knowledge about epidemiological studies.

Public Health Implications

The pathological evaluation of autoimmune disorders in the Brazilian population can help us in the public sector in many ways. The first implication is that it can help in surveillance and screening programs related to autoimmune disorders. As we know, the symptoms of autoimmune disorders take time to show themselves. If screening tests are done during this time, it can save other people from getting the disease. Proper screening and surveillance systems can help reduce outbreaks of autoimmune disorders in any population.

The other implication of pathological evaluation is related to awareness campaigns. As mentioned earlier, some environmental factors can cause autoimmune disorders, so if awareness is provided related to these environmental factors, people can be saved from the grim of autoimmune disorders. This pathological evaluation of autoimmune disorders will not only treat autoimmune disorders but will also help in reducing these cases by spreading awareness. The other implications of pathological evaluation of autoimmune disorders can be described in terms of educational implications that will help in the field of education.

Table 1: Result of Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Pathological Evaluation	50	1.00	4.00	1.8600	.75620
Autoimmune Disorders	50	1.00	4.00	1.7200	.70102
Brazilian Population	50	1.00	3.00	1.6400	.66271
Valid N (listwise)	50				

The result of the Descriptive Statistics shown in table 1 that the values of each variable's minimum, maximum, mean, and standard deviation are represented in the results of descriptive statistical analysis. The primary independent variable is the pathological assessment. According to the findings, the standard deviation rate is 75% and the mean value is 1.8600. The standard deviation rate of

70% and the mean value of 1.7200 is represented by the autoimmune illnesses. In a similar vein, the population of Brazil is the primary dependent variable, per the outcome. It deviates from the mean value, which is 1.6400, by a standard deviation rate of 66%. Its highest value is 3.000, and its minimum value is 1.000, as indicated by the above result related to them.

Table 2: Result of Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Pathological Evaluation & Brazilian Population	50	-.103	.478
Pair 2	Autoimmune Disorders & Brazilian Population	50	-.134	.355

The above result of the Paired Samples Correlations represents that Table 2 first pair is pathological evaluation, and the Brazilian population result shows that its correlation value is -.103. The significant rate is 0.478, showing a negative but significant relation between the pathological evaluation and the Brazilian population. The second pair is autoimmune disorders, and the Brazilian population result shows that its correlation value is -.134 and the significant rate is 0.355. Its mean is negative but has a 35% significant relation with them. The paired test statistical analysis findings are displayed in the

below result Table 3, along with the mean values, standard deviation rate, 95% confidence interval value, significant rate, and t-statistic value for each pair. According to the Brazilian population result, the pathological evaluation pair has a t-statistic value of 1.474 and a significant rate of 0.147, indicating a 14% significant level between them. The Brazilian population result for the second pair of autoimmune diseases indicates that the 95% confidence interval level is between -.21187 and 0.37187. Additionally, the result reveals that the t-statistic value is .551 and the significant level is 58%.

Table 3: Result of Paired Samples Correlations

		Paired Differences				T	Df	Sig. (2-Tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
					Lower	Upper		
Pair 1	Pathological Evaluation - Brazilian Population	.22000	1.05540	.14926	-.07994	.51994	1.474	.147
Pair 2	Autoimmune Disorders - Brazilian Population	.08000	1.02698	.14524	-.21187	.37187	.551	.584

Table 4: Result of ANOVA^a

	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.486	2	.243	.543	.584 ^b
	Residual	21.034	47	.448		
	Total	21.520	49			

a. Dependent Variable: Brazilian Population

b. Predictors: (Constant), Autoimmune Disorders, Pathological Evaluation

The previously mentioned outcome shown in table 4 indicates a considerable correlation between the F statistical analysis, the mean square values, and the total of square values in Table 4. According to the outcome, the average square value is 24%, the regression value is 0.486, and the mean square value is 0.243. The significant value is 58%, while the F statistic rate is 54%. According to the residual model, the mean square value is 44% and the square rate sum is 21.034, respectively. The sum of the values, 21.520, indicates a strong and positive correlation between them. The discussed outcome in Coefficients in Table 5, indicates that the linear regression analysis

describes the unstandardized coefficient as comprising the beta value and standard error.

The outcome demonstrates that the statistically significant values show each variable's model. The pathological evaluation indicates a relationship between the unstandardized coefficients and the beta rate. 63% is a significant level, as indicated by the t-statistic value of -0.479 and the significant value of 0.634. The standardized coefficient rate beta value for autoimmune diseases is -0.114, the t-statistic value is -0.762, and the significant value is 0.450, indicating a 45% significant degree of correlation between them.

Table 5: Result of Coefficients

		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.942	.309		6.280	.000
	Pathological Evaluation	-.063	.131	-.072	-.479	.634
	Autoimmune Disorders	-.108	.142	-.114	-.762	.450

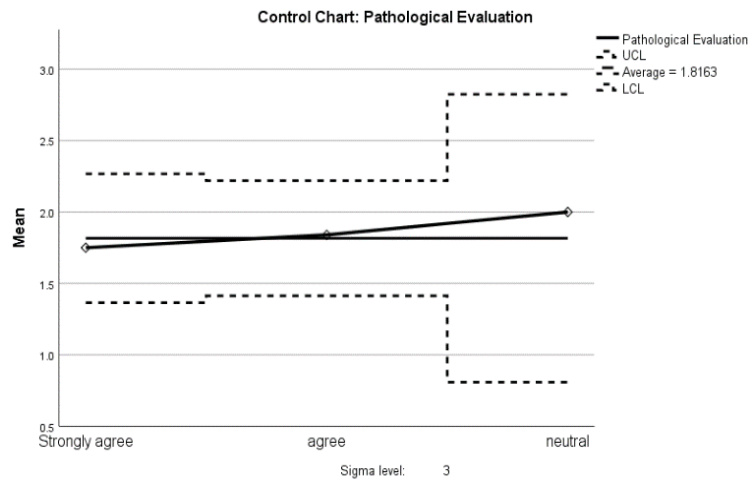
a. Dependent Variable: Brazilian Population

Table 6: Result of Test Statistics

	Pathological Evaluation	Autoimmune Disorders	Brazilian Population
Chi-Square	24.400 ^a	33.360 ^a	12.280 ^b
Df	3	3	2
Asymp. Sig.	.000	.000	.002

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 12.5.

b. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 16.7.

**FIGURE 2:** Control Chart

The Brazilian population, autoimmune diseases, and pathological examination are all described in the aforementioned result in Table 6 Test Statistics. The pathological evaluation's chi-square value is 24.400, the autoimmune disorders' chi-square value is 33.360, and the population of Brazil's chi-square value is 12.280. There is a 100% significant level between them, as evidenced by the

total significant rate of 0.000. The above graph shown in figure 2 represents a control chart. The vertical side shows the mean value, which starts from 1.0, 1.5, 2.0, and 3.0, respectively. The sigma level is present that strongly agrees, agrees, and is neutral. The average rate, 1.8163, shows the relation between pathological evaluation and autoimmune disorders.

Table 7: Result of Total Variance Explained

Component	Total Variance Explained			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.351	45.024	45.024	1.351	45.024	45.024
2	.922	30.749	75.773			
3	.727	24.227	100.000			

Extraction Method: Principal Component Analysis.

The above result describes in Table 7 that total variance explains initial eigenvalues and extraction sums of squared loading. The total values are 1.351, 0.922, and 0.727, which show 72% and 92%, respectively. The cumulative percentages are 45.024, 30.749, and 24.227, respectively. The extraction sums of squared are 45.024 and 1.351, respectively.

Conclusion

We might infer that the prevalence of autoimmune illnesses in Brazil is concerning after reviewing the significant ramifications of pathological examination of autoimmune disorders in the Brazilian population. Nevertheless, this assessment will soon show to be beneficial. One of the biggest problems facing the present public health system in an area with such wide socioeconomic and geographic differences is changing the way that ADs are treated. Determining the carriers is not sufficient; early diagnosis circumstances must also be established to support the efficacy of epidemiological surveys and the resulting prevalence estimates.

In Southern Brazil, the majority of AIH patients are Caucasian, young, and female when they initially arrive. In addition to cirrhosis, a significant number of patients also had extrahepatic autoimmune disorders at the time of presentation. Despite the fact that no histological, clinical, or serological characteristic can be used to predict a patient's prognosis or therapeutic response, the treatment works. Because AIH is extremely rare, few research has looked at the characteristics of adult patients in Brazil. This is the first research to assess these patients at a South Brazilian referral institution. Because

the IAIHG criteria were used for both the diagnostic diagnosis and the assessment of treatment response, the population in our study was homogenous. People of all ages and races are susceptible to AIH. The Pathological Evaluation of Autoimmune Disorders in Brazilian Populations is another finding of the investigation.

To measure the study and provide outcomes, such as descriptive statistics, a control chart, and linear regression analysis, research utilized SPSS software. The majority of studies revealed a bimodal age pattern at presentation, with two peaks: one in middle age, or between the fourth and sixth decades of life, and another during childhood/adolescence. The average age at the commencement of the illness ranged from 47.7 to 50 years, according to research conducted throughout Europe. The average age in North America was between 45 and 47 years old, whereas the average age in Latin America is about 40 years old. These outcomes agree with the findings of the current investigation. Furthermore, the study discovered that women were impacted more than males (4:1), which is consistent with findings from previous studies (3.6:1 ratio).

Affected adults with extrahepatic autoimmune symptoms comprise 22% to 50% of cases. It is much less common in Brazil, where it primarily affects youngsters, where it is between 14% and 18%. In this study, 20% of the patients all female had autoimmune disorders unrelated to liver problems. These numbers resemble those from Brazil and other nations quite a bit. 10% to 20% of individuals with AIH may have a spectrum of first symptoms, varying from very symptomatic to non-symptomatic. All things considered, the study found a strong and clear correlation between them. Fatigue and jaundice are the most

common symptoms, affecting thirty to forty percent of patients. Our data showed that jaundice accounted for 47.5% of the most common

symptoms, whereas 40% of patients showed no signs or symptoms in the first place.

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