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Bridging Theory and Practice

Patients with Metabolic Syndrome

Highlights

Association with Quality of Life

Chronicles of Doctor Moacyr Scliar

Discovering Thoughts, Inventing Future

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Physical Activity Level and Time of Participation in a Water Aerobics Project for the Elderly: Analysis of the Association with Quality of life, Musculoskeletal and Osteoarticular Disorders, Chronic Pain and Body Mass Index

By Anna Regina Grings Barcelos, Daiane Bolzan Berlese, Marcus Levi Lopes Barbosa & Geraldine Alves Dos Santos

Universidade Feevale

Abstract- The objective was to analyze the association between the physical activity level (PAL) and time of participation in the practice of water aerobics with the variables successful aging (SA), quality of life (QOL), musculoskeletal and osteoarticular disorders (MOD), chronic pain (CP) and body mass index (BMI). The method has a quantitative, descriptive and cross-sectional design. The non-probabilistic sample, for convenience, comprised 101 elderly people over 60 years of age, of both genders, who regularly participate in water aerobics activities in the city of Dois Irmãos, in the state of Rio Grande do Sul. The following instruments were used: Multidimensional Pain Assessment Scale, EUROHIS-QOL, IPAQ, SOC and Body Mass Index. Descriptive analyses of frequency, comparison, correlation and multiple linear regression were used. The results showed that the irregularly active group has adequate perception of QOL and longer participation in water aerobics activities associated with lower intensity of pain perception. Likewise, better QOL and control attitudes are associated with lower prevalence of MOD.

Keywords: successful aging; osteoarticular and musculoskeletal disorders; chronic pain; quality of life; BMI.

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Physical Activity Level and Time of Participation in a Water Aerobics Project for the Elderly: Analysis of the Association with Quality of life, Musculoskeletal and Osteoarticular Disorders, Chronic Pain and Body Mass Index

Anna Regina Grings Barcelos ^a, Daiane Bolzan Berlese ^a, Marcus Levi Lopes Barbosa ^b
& Geraldine Alves Dos Santos ^c

Abstract- The objective was to analyze the association between the physical activity level (PAL) and time of participation in the practice of water aerobics with the variables successful aging (SA), quality of life (QOL), musculoskeletal and osteoarticular disorders (MOD), chronic pain (CP) and body mass index (BMI). The method has a quantitative, descriptive and cross-sectional design. The non-probabilistic sample, for convenience, comprised 101 elderly people over 60 years of age, of both genders, who regularly participate in water aerobics activities in the city of Dois Irmãos, in the state of Rio Grande do Sul. The following instruments were used: Multidimensional Pain Assessment Scale, EUROHIS-QOL, IPAQ, SOC and Body Mass Index. Descriptive analyses of frequency, comparison, correlation and multiple linear regression were used. The results showed that the irregularly active group has adequate perception of QOL and longer participation in water aerobics activities associated with lower intensity of pain perception. Likewise, better QOL and control attitudes are associated with lower prevalence of MOD. The longer time of participation in the project is associated with disability, evidencing the group's weakness in the sense of carrying out more intense activities. However, they are physically active and in sufficiently good health to practice water aerobics, considering their skills and limitations. The active group reveals an association of the PAL with SA and medical healing attitudes, solicitude, emotion and control. These characteristics prove the relation of the time of participation in the pain condition scope, thus revealing the hopelessness in the medical healing and, conversely, express self-sufficiency in the ability to deal with limitations and discomfort of the conditions resulting from a chronic condition. Given this scenario, the sense of participation in physical activities has been gaining strength as one of the principles that aim to promote the improvement of QOL and physical functionality of the elderly population.

Keywords: successful aging; osteoarticular and musculoskeletal disorders; chronic pain; quality of life; BMI.

I. INTRODUCTION

One of the greatest cultural achievements of a people in its humanization process is the aging of its population, reflecting an improvement in living conditions. According to United Nations Population Fund projections, one in 9 people in the world is 60 years of age or older, and a 1 to 5 growth is

estimated around 2050. In 2050, for the first time, there will be more elderly people than children under 15 years of age. In 2012, 810 million people were aged 60 or over, making up 11.5% of the global population. This number is projected to reach 1 billion in less than ten years and more than to double in 2050, reaching 2 billion people or 22% of the global population (IBGE, 2016).

Within the scope of the Brazilian population, rapid and profound changes have reflected in economic growth, in the labor market and in the profile of demands for public policies. Among the main changes, Camarano (2014) highlights the sharp fall in fertility and mortality at all ages and population aging, as well as the emergence of new forms of family arrangements. Considering that aging is a natural, universal, irreversible phenomenon and does not occur simultaneously and equally among human beings, it is essential to ratify the inclusion of physical activities in the daily lives of the elderly in the context of improving the quality of life (Borges et al., 2017).

In view of the demographic growth and the changes in the age pyramid, associated with the heterogeneity of the aging process, there is a recurring need to envision preventive and health care actions, to cover the maintenance of the organic function and the social well-being of the elderly population. Likewise, quality of life is important, as there is a new sensitivity to old age, derived from the aging of the population, the presence of a greater number of active and healthy elderly people and the constant dissemination of information about the importance of a healthy lifestyle and the search for medical and social resources that improve and prolong life (Neri, 2011). In view of this, several organizations emphasize the benefits of physical activity for the health and well-being of individuals of all ages. Moreover, it has been proven that the use of quantitative assessments is useful to estimate levels of physical activity based on self-reported data on the type, frequency and intensity of exercises (Taylor, 2015).

With regard to active aging, the World Health Organization (WHO) recommends that elderly people aged 65 and over engage in at least 150 minutes per week of moderate intensity activities or at least 75

minutes per week of vigorous intensity or an equivalent combination moderate and vigorous activity. Aerobic activity should be performed in sessions of at least 10 minutes to obtain additional health benefits, in addition to daily routine activities. Elderly people with little mobility should perform physical activities to improve balance and avoid falls on three or more days a week. When they are unable to practice the amounts of physical activity due to health conditions, they should be as physically active as their skills and conditions allow (World Health Organization, 2010).

Given this perspective, the practice of water aerobics has been growing among the elderly population, as well as scientific investigations that seek to test and prove the benefits associated with its execution. In this context, it is important to highlight the characteristics related to the physical properties of the water environment. The practice of water-based exercises produces physiological and biomechanical responses different from those of the terrestrial environment, since individuals immersed in the liquid environment are subjected to a set of forces that act on them (Kruel et al., 2013; Baun, 2010).

Considering the above, the objective of this study was to analyze the association between the physical activity level and time of participation in the practice of water aerobics with successful aging, quality of life, prevalence of musculoskeletal and osteoarticular disorders, chronic pain and body mass index in elderly people participating in a water aerobics program in the city of Dois Irmãos, in Rio Grande do Sul.

II. METHOD

The present study has a quantitative, descriptive and cross-sectional design. The population of this study was composed of elderly people who participate in the water aerobics project offered by the Municipal Administration of Dois Irmãos, through the Department of Health, Social Assistance and Environment. A total of 230 elderly residents of the city aged over 60 years participate in the project.

The sample of this study was non-probabilistic, for convenience, and comprises 101 participants, of both genders, aged over 60 years, consisting of elderly people who regularly participate in water aerobics activities. The inclusion criteria established were to be aged over 60 years, not to be institutionalized or hospitalized, to have mental and health conditions to have independence and autonomy to participate in the study and sign an informed consent form. The exclusion criteria determined by the research were to present dementia, frailty syndrome, to be hospitalized or institutionalized.

The data collection instruments used in this study refer to sociodemographic variables and the presence of osteoarticular and musculoskeletal

disorders, pain assessment (Multidimensional Pain Assessment Scale and brief IAD), quality of life (EUROHIS-QOL), successful aging (Selection, optimization and compensation survey, SOC), body weight status (Body Mass Index - BMI) and physical activity level (IPAQ - adapted long version). The Ethics Committee from Feevale University approved the project. Participants signed an informed consent form in accordance with resolutions 466/2012 and 510/2016 of the National Health Council of the Ministry of Health that deals with research involving human beings.

III. RESULTS

The distribution of the 101 elderly people participating in the activity, in relation to the physical activity level, is 66.3% (n=67) active and 33.7% (n=34) irregularly active. In the comparison between the classification of the physical activity level evaluated by the IPAQ test (subdivided between irregularly active and active) and the variable time of participation in the water aerobics project (subdivided in the period from beginner to the maximum time of 4 years and in the period of 5 to 12 years), no significant difference was found. Although there was no significant difference between the groups assessed by the Chi Square test, the results showed that the largest group of participants focused on the active classification and had participated in the project for more than 5 years.

Table 1 shows the bivariate correlations performed by the Spearman test. The physical activity level variable, assessed by the IPAQ test, shows that by increasing the level of physical activity, the elderly people in our study show an increase in quality of life and decrease in the body mass index assessed by BMI. As to the time of participation in the project, it is identified that the more years the elderly are regularly participating in this project, the lower is the use of strategies to promote successful aging, especially the elective selection strategy, as if there were a certain accommodation over the years. The solicitation strategy to face chronic pain also decreases.

Table 1: Correlations between Successful Aging Strategies, Quality of Life, Body Mass Index and Physical Activity Level and Project Participation Time

			SOC	Elective Selection	Quality of Life	Solicitude	BMI
Spearman's Rho	Physical Activity Level	Correlation Coefficient	.008	.137	.290**	-.079	-.304**
		Sig. (2-tailed)	.934	.178	.003	.509	.002
Time of Participation in the Water Aerobics Project (years)		N	101	101	101	72	101
		Correlation Coefficient	-.311**	-.300**	.146	-.247*	-.003
		Sig. (2-tailed)	.002	.003	.145	.036	.973
		N	101	101	101	72	101

Note: ** Significant Correlation $p \leq 0.01$; * Significant Correlation $p \leq 0.05$; SOC = Selection, optimization and compensation survey, BMI = Body Mass Index.

Table 2 shows the correlation of the group of people who are irregularly active. In this group we can identify that both the increase in the perception of quality of life and the time of participation in water aerobics activities are associated with the decrease in the perception of chronic pain intensity. Longer participation

in the project's activities is also associated with the disability strategy. Increased perception of quality of life and control strategy and decreased chronic pain are associated with a decrease in the number of osteoarticular diseases.

Table 2: Correlation Analysis Using Spearman's Test in the Irregularly Active Elderly Group

Variables		Rho	p	N
Quality of Life	Chronic Pain Perception Intensity	-.412	.016	34
Time of Participation in Regular Water Aerobics Activities	Chronic Pain Perception Intensity	-.410	.016	34
Time of Participation in Regular Water Aerobics Activities	Incapacity	.394	.046	26
Osteoarticular Diseases	Quality of Life	-.347	.044	34
Osteoarticular Diseases	Chronic Pain Perception Intensity	.520	.002	34
Osteoarticular Diseases	Control	-.416	.034	26

Note: rho = Spearman's Rho; p = Significance Level.

Table 3 shows the correlation analyzes of the group of people who remain active. In this group we can see that the increase in the perception of quality of life and the decrease in osteoarticular diseases, as in the irregularly active group, reduces the perception of chronic pain intensity. By increasing the time of participation in water aerobics activities, the use of the elective selection strategy to promote successful aging decreases, but the control strategy for pain increases. The use of the emotion strategy is also associated with a decreased perception of chronic pain. The more the solicitude strategy is used, the less the optimization and the more the compensation strategies are used. Compensation is associated with decreased medical healing. The increase in the perception of quality of life is associated with a decrease in physical damage. Just

as the decrease in medication is associated with an increased optimization and decreased control.

Table 3: Correlation Analysis Using Spearman's Test in the Active Elderly Group

Variables		rho	p	N
Chronic Pain Perception Intensity	Quality of Life	-.260	.034	67
Time of Participation in Regular Water Aerobics Activities	SOC	-.356	.003	67
Time of Participation in Regular Water Aerobics Activities	Elective Selection	-.406	.001	67
Time of Participation in Regular Water Aerobics Activities	Control	.322	.029	46
Chronic Pain Perception Intensity	Emotion	-.355	.016	46
Solicitude	Optimization	-.423	.034	46
Solicitude	Compensation	.352	.017	46
Medical Cure	Compensation	-.449	.002	46
Physical Damage	Quality of Life	-.311	.036	46
Medication	Optimization	-.306	.039	46
Medication	Control	.291	.050	46
Chronic Pain Perception Intensity	Osteoarticular Diseases	.393	.001	67

Note: rho = Spearman's Rho; p = Significance Level; SOC = Selection, optimization and compensation survey.

Linear regression analysis was performed in the group with an active physical activity level (n = 67), by using the stepwise method with a significance level of ≤ 0.05 . Strategies for promoting successful aging (selection, optimization and compensation) was used as the dependent variable.

Table 4 shows an indirect relation (signal and intensity) between the SOC variable (dependent, explained) and the time of participation in the water

aerobics and medical healing project (independent, explanatory). In this model, a 0.347 R-squared (R^2) was obtained. This determination coefficient is a measure of the efficiency of the regression equation. Indicates that 34.7% of the variations in successful aging strategies can be explained by variations in the time of participation in the project and medical healing in active people.

Table 4: Multiple Linear Regression of the SOC Variable in Active Elderly Individuals

Model	Unstandardized Coefficient		Standardized Coefficient Beta	t	Sig.	Collinearity Statistics	
	B	Standard Error				Tolerance	VIF
(Constant)	10.635	0.860		12.368	0.000		
Time of Participation in the Water Aerobics Project (years)	-0.312	0.074	-0.522	-4.182	0.000	0.976	1.025
Medical Cure	-0.947	0.322	-0.367	-2.943	0.005	0.976	1.025

Note: VIF = Variance Inflation Factor; SOC = Selection, optimization and compensation survey.

In the same group classified as active (n=67), linear regression analysis was performed by using the stepwise method, with time of regular participation in the water aerobics project set as the dependent variable. In the analysis presented in table 5, the relation between the time of participation in the water aerobics project (dependent, explained) was indirectly related to the SOC, medical healing and solicitude variables and directly related to the control variable (independent, explanatory). In this model, a 0.459 R-squared (R^2) was obtained. This determination coefficient indicates that 45.9% of the variations in the time of participation in the water aerobics project can be explained by the variations of the other variables. In this group of active elderly people, the permanence of people in the project is partly explained by the decrease in the strategies for

successful aging, medical healing and solicitude, and increased control.

Table 5: Multiple Linear Regression of the Variable Time of Participation in the Water Aerobics Program (years) with Active Elderly Individuals

Model	Unstandardized Coefficient		Standardized Coefficient Beta	t	Sig.	Collinearity Statistics	
	B	Standard Error				Tolerance	VIF
(Constant)	11.636	3.266		3.563	.001		
SOC	-.830	.205	-.496	-4.044	.000	.879	1.138
Medical Cure	-1.646	.528	-.381	-3.121	.003	.886	1.129
Solicitude	-.882	.332	-.312	-2.653	.011	.957	1.045
Control	1.583	.672	.279	2.354	.023	.941	1.063

Note: VIF = Variance Inflation Factor; SOC = Selection, optimization and compensation survey.

In the groups classified as Active (n=67) and Irregularly Active (n=34), a linear regression analysis was performed by applying the stepwise method, with the perception of chronic pain intensity as the dependent variable, as shown in Table 6.

In this analysis, the verification of the perception of pain indirectly related to quality of life in the irregularly active group and emotion in the active group. In this model, a 0.176 R-squared (R^2) of was obtained in the

irregularly active group and 0.160 in the active group. This coefficient of determination indicates that 17.6% of the variations in the perception of chronic pain intensity can be explained by variations in quality of life and emotion (16%). In the group of irregularly active elderly people, the decrease in pain perception is related to the promotion of quality of life and, in the active group, emotion stands out.

Table 6: Multiple Linear Regression of the Variable Chronic Pain Perception in Irregularly Active and Active Elderly Individuals

IPAQ Classification	Model	Unstandardized Coefficient		Standardized Coefficient Beta	t	Sig.	Collinearity Statistics	
		B	Standard Error				Tolerance	VIF
Irregularly Active	1	(Constant)	16.263	4.123	3.944	.001		
		EUROHIS	-.296	.133	-.419	2.216	.037	1.000
Active	1	(Constant)	5.202	.575	9.052	.000		
		Emotion	.629	.218	.400	2.893	.006	1.000

Note: VIF = Variance Inflation Factor; IPAQ = Physical Activity Level.

Table 7 shows the correlation analyzes of the group of people in our sample who regularly participate in the water aerobics project for a maximum of four years. The analysis was performed by using the Spearman test with $\alpha \leq 0.05$ significance level. In this group, the decrease in the perception of pain and the increase in the elective selection strategy are associated with an increase in the perception of quality of life. The increase in the physical activity level is also associated with the increased use of the elective selection strategy and decreased perception of chronic pain. The increase in the perception of chronic pain is also directly related to the number of osteoarticular diseases. The increase in the use of the elective selection strategy is associated with a decrease in control, just as the increase in

emotion is associated with increased solicitude and physical damage. Decreased medical healing is associated with increased successful aging strategies.

Table 7: Correlation Analysis in the Group of Elderly Individuals Participating Regularly in the Water Aerobics Project for a Maximum of 4 Years

Variables		Rho	p	N
Quality of Life	Chronic Pain Perception Intensity	-.361	.017	43
Quality of Life	Elective Selection	.467	.002	43
Physical Activity Level	Elective Selection	.354	.022	43
Physical Activity Level	Chronic Pain Perception Intensity	-.336	.028	43
Osteoarticular Diseases	Chronic Pain Perception Intensity	.551	.000	43
Elective Selection	Control	-.372	.043	31
Solicitude	Emotion	.420	.019	31
Medical Cure	SOC	-.537	.002	31
Medical Cure	Elective Selection	-.567	.001	31
Medical Cure	Compensation	-.464	.010	31
Physical Damage	Emotion	.367	.042	31

Note: rho = Spearman's Rho; p = Significance Level; SOC = Selection, optimization and compensation survey.

Table 8 shows the correlation analyzes of the group of people in our sample who regularly participate in the water aerobics project for at least five years. The analysis was performed by applying the Spearman test with $\alpha \leq 0.05$ significance level. In this group, the decrease in the perception of pain is associated with an

increase in the perception of quality of life, control, and a decrease in the number of osteoarticular diseases. The increase in the physical activity level is associated with the increased use of control. Increased solicitude is associated with increased optimization, emotion and medication.

Table 8: Correlation Analysis in the Group of Elderly Individuals Participating Regularly in the Water Aerobics Project for 5 Years or More

Variables		rho	p	N
Chronic Pain Perception Intensity	Quality of Life	-0,295	0,022	58
Physical Activity Level	Control	0,368	0,018	41
Chronic Pain Perception Intensity	Osteoarticular Diseases	0,361	0,005	58
Solicitude	Optimization	-0,486	0,040	41
Chronic Pain Perception Intensity	Control	-0,313	0,047	41
Solicitude	Emotion	0,475	0,002	41
Solicitude	Medication	0,327	0,037	41

Note: rho = Spearman's Rho; p = Significance Level.

Table 9 shows the linear regression analysis performed by using the stepwise method, with BMI as the dependent variable. In this analysis, the BMI was indirectly related to solicitude and physical activity level in the group with less than 4 years of participation in the project. In this model, a 0.377 R-squared (R^2) was

obtained, indicating that 37.7% of the BMI variations can be explained by the variations in solicitude and physical activity level. In the group of elderly people who participate less often, the decrease in BMI is related to the increase in solicitude and physical activity level.

Table 9: Multiple Linear Regression of BMI in the Group with Shorter Participation Time in the Water Aerobics Project

Time of Participation in the Water Aerobics Project	Model	Unstandardized Coefficient		Standardized Coefficient Beta	t	Sig.	Collinearity Statistics	
		B	Standard Error				Tolerance	VIF
Participation of 4 Years or Less in the Water Aerobics Project	(Constant)	37.455	1.929		19.414	.000		
	Solicitude	-1.495	.478	-.483	-3.127	.004	.967	1.034
	IPAQ	-.017	.005	-.478	-3.094	.005	.967	1.034

Note: VIF = Variance Inflation Factor

Table 10 shows the linear regression analysis by using the stepwise method, in the group of active elderly people who participate in the water aerobics project for 4 years or less (n=31) with the strategies for promoting successful aging (SOC) as the dependent variable. In this analysis, SOC was indirectly related to medical healing and solicitude. In this model, a 0.606

R-squared (R²) was obtained, indicating that 60.6% of the SOC variations can be explained by variations in medical healing and solicitude. In this active group, which participates for a shorter time in the water aerobics project, SOC strategies are related to a reduction in the medical healing and solicitude strategies.

Table 10: Multiple Linear Regression of SOC in the Group of Active Individuals with 4 Years or Less of Participation in the Water Aerobics Project

Model	Unstandardized Coefficient		Standardized Coefficient	t	Sig.	Collinearity Statistics	
	B	Standard Error				Tolerance	VIF
(Constant)	13.281	1.182		11.237	.000		
Medical Cure	-1.860	.368	-.859	-5.058	.000	.805	1.243
Emotion	-.674	.233	-.492	-2.899	.010	.805	1.243

Note: VIF = Variance Inflation Factor; SOC = Selection, optimization and compensation survey.

Table 11 shows the linear regression analysis by using the stepwise method, in irregularly active (n=27) and active (n=36) groups of people with more than 5 years of participation in the water aerobics project. The dependent variable was perception of chronic pain intensity. In this analysis, chronic pain was directly checked for the variables osteoarticular

disorders in the irregularly active group and emotion in the active group. In this model, 0.383 and 0.379 R-squared (R²) were obtained, respectively. Indicating that 38.3% and 37.9% of the variations in the chronic pain intensity can be explained by the variation in the number of chronic diseases in the irregularly active group and by the emotion in the active group.

Table 11: Multiple Linear Regression of Chronic Pain Intensity in Irregularly Active and Active Groups with More than 5 Years of Participation in the Water Aerobics Project

Classification IPAQ	Model	Unstandardized Coefficient		Standardized Coefficient	t	Sig.	Collinearity Statistics	
		B	Standard Error				Tolerance	VIF
Irregularly Active	(Constant)	5,699	0,515		11,059	0,000		
	Osteoarticular Diseases	1,210	0,426	0,619	2,843	0,014	1,000	1,000
Active	(Constant)	4,194	0,725		5,782	0,000		
	Emotion	1,093	0,286	0,616	3,829	0,001	1,000	1,000

Note: VIF = Variance Inflation Factor; IPAQ = Physical Activity Level.

Table 12 shows the linear regression analysis by using the stepwise method, in the group of irregularly active elderly people (n=27) with more than 5 years of participation in the water aerobics project and active people (n=31) with 4 years or less, with BMI as the dependent variable. In this analysis, the BMI was indirectly related to the medication and optimization variables in the irregularly active group (R²=0.766) and solicitude (R²=0.325) in the active group. These results indicate that 76.6% and 32.5% of the decrease in BMI, respectively, can be explained by the increase in medication and optimization in the irregularly active group that has participated in the project for more than 5 years and solicitude in the active group that has participated for 4 years or less.

Table 12: Multiple Linear Regression of BMI in Irregularly Active Groups with More Than 5 Years and Active Groups with Less Than 4 Years of Participation in the Water Aerobics Project

Classificat. IPAQ	Time of Participation in the Water Aerobics Project	Model	Unstandardized Coefficient			SC	t	Sig.	Collinearity Statistics	
			B	Standard Error	Beta				Tolerance	VIF
Irregularly Active	5 Years or More	Constante	56.148	4.129			13.600	.000		
		Medication	-5.622	0.922	-.971		-6.099	.000	.768	1.301
	4 Years or Less	Optimization	-3.608	0.853	-.673		-4.230	.001	.768	1.301
		Constante	32.830	1.469			22.343	.000		
Active	Solicitude		-1.403	.477	-.570		-2.942	.009	1.000	1.000

Note: VIF = Variance Inflation Factor; SC = Standardized Coefficient; IPAQ = Physical Activity Level.

IV. DISCUSSION

The context of this discussion involves the analysis of the relation between the physical activity level and time of participation of elderly people in a water aerobics project with successful aging, quality of life, musculoskeletal and osteoarticular disorders, chronic pain and body mass index as variables. The number of elderly people participating in water aerobics activities is higher in the active group who has participated in the activity for more than 5 years. Similar results were found in the study by Ferretti et al. (2019), with a predominance of active and very active elderly, representing 50% and 57.1% respectively, and a low classification of sedentary people (7.8%).

In regard to the physical activity level, in this study, the association with better quality of life and lower body mass index (BMI) stands out. A study by Toscano and Oliveira (2009) similarly concluded that the quality of life of elderly people who have a higher level of physical activity is better than those with a lower level of physical activity. In this scenario, higher levels of physical activity seem to intervene positively in the quality of life of the elderly.

Regarding BMI, in the study by Brito, Menezes and Olinda (2015), nutritional status was the only variable that did not show a statistically significant association with functional disability in both genders, despite the high prevalence of elderly people who presented inadequate nutritional status, either due to low weight or overweight/obesity. The highest prevalence of functional disability verified in this study was observed among elderly people who did not practice any physical activities, with inadequate nutritional status, who reported four or more diseases and who rated their health as poor.

As to the time of participation in water aerobics activities, the results showed a significant correlation in relation to the elective selection strategy and in relation to the solicitude in the presence of chronic pain,

evidencing certain accommodation in relation to their successful aging strategy. At the same time, they reveal autonomy, security and confidence in relation to their abilities, even in the face of situations such as the presence of chronic pain. Thus, demonstrating satisfaction in the affection and concern relationships with family members and close people. The great innovation in the context of successful aging, in Gonçalves's (2015) perspective, is the belief that aging is compatible with a healthy and full life, from a physical and mental point of view. Prevention plays a key role in this process. According to lifestyle, the aging process is different from person to person. Thus, an active lifestyle implies the performance of activities and the development of social networks, which may benefit health.

With the results of this study, it was possible to identify, in the irregularly active group, a better perception of quality of life and a longer time of participation in water aerobics activities associated with a lower intensity of pain perception. Likewise, better quality of life and control attitudes are associated with a lower prevalence of osteoarticular and musculoskeletal disorders. In regard to quality of life, the correlation analysis carried out in the study by Ferretti et al. (2018) demonstrated similar results, noting that the greater the quantity of disease and intensity of pain, the lower the quality of life score is.

Another relevant aspect found in this study reveals that the longer time of participation in the project is associated with disabilities, evidencing the fragility of the group in the sense of carrying out more intense activities. However, they are physically active and in sufficiently good health to practice water aerobics, considering their skills and limitations. Conversely, the study points out a significant correlation as to the time of participation in the water aerobics project with a decrease in the perception of chronic pain and better perception of quality of life.

In a way, these findings resonate with the findings of the study by Santos et al. (2015). The results showed that being physically active during leisure time is significantly associated with a lower prevalence of chronic pain. The practice of physical activities by the elderly, especially at leisure, provides opportunities for a more active, healthy and independent life, thus contributing to maintaining autonomy and improving quality of life.

However, it is important to refer to the study carried out by Castro et al. (2010), which aimed to investigate the effects of an exercise program on elderly women with complaints of pain and with osteoporosis/osteopenia in terms of functional autonomy. The highest percentage was in the condition of severe pain (37.09%) and another large percentage was composed of moderate and moderate to high levels. The minimization of pain for all participants extended to the condition of non-pain after the program for almost 14% of the elderly women, while the group with low and moderate pain increased. Most of the elderly women who felt severe pain changed to the situation of moderate pain. Therefore, the benefits of physical activity programs in preventing and improving pain are evident in that study.

In this context, the study by Oliveira et al. (2018) analyzed the effect of sedentary behavior on the practice of physical activity in elderly people who attend gyms. The study revealed that as the sedentary behavior increases, the performance of vigorous physical activities decreases and moderate activities increase. This occurrence has a certain association with the findings of this study, since sedentary behavior negatively affects the performance of vigorous activities in the elderly and positively the performance of moderate activities. In view of this evidence, it is clear that exercise is not an elixir for healthy living, but a regular regimen of physical activity has been shown to decrease morbidity and increase the quality of life enjoyed by the elderly population (Taylor, 2015). However, participation in physical activities and exercise plays an important role in preventing the progress of diseases and prolonging years of independent life (Powers & Howley, 2014).

The analysis carried out in the group of regularly active elderly people reveals a significant correlation between perception of chronic pain intensity with better responses in relation to quality of life, lower prevalence of osteoarticular and musculoskeletal disorders and lower levels of anxiety, stress and depression that make up the attitude of emotion in the face of pain. Similar information was expressed by the elderly people interviewed in the study by Cardoso et al. (2008), characterized as very active and with pathologies, who considered their health to be good without hindering the practice of physical activity.

The results obtained in relation to the time of participation of regularly active elderly people reveal

statistically significant correlations with successful aging strategies, specifically in relation to elective selection. The analysis in the active group still reveals that the compensation and optimization functions show a significant correlation with the variables that make up the attitudes towards the presence of chronic pain, with regard to solicitude and medication, demonstrating autonomy and independence in the way that the elderly people who practice water aerobics deal with adverse situations. Regarding this observation, the involvement in physical activities constitutes an important element in the physical and social well being of the elderly. In the study by Dellarozza et al. (2013), the pain complaint that bothered the elderly the most demonstrated an association with a greater degree of dependence in the activities of basic and instrumental daily life and in the alteration of mobility. Another relevant result found in the study by Lemos et al. (2019) demonstrates a negative influence of chronic pain on the quality of life of the elderly population and on the functionality and autonomy of these individuals. Thus, it is essential to ratify the inclusion of physical activities in the daily lives of the elderly in the context of improving quality of life, considering that aging is a natural, universal, irreversible phenomenon and does not occur simultaneously and equally in human beings (Borges et al., 2017).

Another relevant aspect evidenced in the group of active elderly people reveals a significant association of the level of physical activity with the variables that permeate successful aging, as well as the attitudes of medical healing, solicitude, emotion and control. These characteristics prove the relation of the time of participation in the water aerobics activity in the ambit of the pain condition, revealing the hopelessness in the medical healing and in an opposite way, expressing self-sufficiency in the ability to deal with the limitations and the discomfort of the injuries resulting from a chronic condition. Thus, so that aging can be used and lived in the best possible way, Montovani et al. (2006), ensures that the regular practice of physical activities provides greater independence, autonomy and better health condition, increasing the sense of general well being.

V. CONCLUSION

Based on the objectives of this study, it is clear that the sense of participation in physical activities has been strengthening as one of the principles that aim to promote the improvement of the quality of life and physical functionality of the elderly population, reflecting on the multiple aspects that constitute biopsychosocial aging. Furthermore, this participation is linked to different factors, including older age and health condition with a certain fragility, since many of the participants in this study do not meet the regularly active classification, with regard to the physical activity level.



However, it is necessary to advance knowledge in this field, considering the characteristics of the aging process, old age and longevity, seeking innovation and quality in the scope of public practices and research, considering the growth of this population in Brazil and worldwide, as a phenomenon worthy of attention, study and investigation.

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Racism in the Chronicles of Doctor Moacyr Scliar

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Abstract- The attention in this article falls on an expressive niche of Moacyr Scliar's literature – the chronicles. Expanding the proposal that the writer made use of his experiences to compose his works, it is highlighted that the media, and among them cinema, are the target of the writer's attention, they appear as a theme in his chronicles and appear in them as an intertext and intermidiaitic reference. It is identified that his performance as a chronicler is marked by the logic of the press, with publications in newspapers and books. After mapping the phases attributed to his literature, there is a thematic association between medicine and cinema in his chronicles, in which cinema and film works appear as a compositional resource, as a motive or setting, to exemplify complex issues or to illustrate reflections in a concrete way about racism.

Keywords: chronicles; medicine; cinema; racism.

GJHSS-H Classification: LCC: PQ9697.S37, HT1521, PN1995



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Racism in the Chronicles of Doctor Moacyr Scliar

O Racismo nas Crônicas do Médico Moacyr Scliar

Lemuel de Faria Diniz ^a, Márcia Gomes Marques ^a, Soraia Geraldo Rozza ^b, Letícia Silva de Oliveira ^c
& Bianca Nantes Nunes^d

Abstract- The attention in this article falls on an expressive niche of Moacyr Scliar's literature – the chronicles. Expanding the proposal that the writer made use of his experiences to compose his works, it is highlighted that the media, and among them cinema, are the target of the writer's attention, they appear as a theme in his chronicles and appear in them as an intertext and intermidiaitic reference. It is identified that his performance as a chronicler is marked by the logic of the press, with publications in newspapers and books. After mapping the phases attributed to his literature, there is a thematic association between medicine and cinema in his chronicles, in which cinema and film works appear as a compositional resource, as a motive or setting, to exemplify complex issues or to illustrate reflections in a concrete way about racism.

Keywords: chronicles; medicine; cinema; racism.

Resumo- A atenção neste artigo recai sobre um nicho expressivo da literatura de Moacyr Scliar – as crônicas. Expandido a proposta de que o escritor fez uso de suas vivências para compor suas obras, destaca-se que as mídias, e entre elas o cinema, são alvo da atenção do escritor, despontam como tema em suas crônicas e nelas aparecem como intertexto e referência intermidiaítica. Identifica-se que, desde o início de sua produção literária, sua atuação como cronista está marcada pela lógica da imprensa, com publicações em jornais e em livros. Após mapear as fases atribuídas a sua literatura, verifica-se a associação temática entre medicina e cinema em suas crônicas, nas quais o cinema e as obras filmicas aparecem como recurso composicional, como motivo ou ambientação, para exemplificar questões complexas ou ilustrar de modo concreto reflexões sobre o racismo.

Palavras-chave: crônica; medicina; cinema; racismo.

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I. INTRODUÇÃO

No conjunto da produção literária do escritor e médico Moacyr Scliar (1937-2011) figuram mais de setenta livros de gêneros diferenciados, tais como romances, ensaios, crônicas, ficções infanto-juvenis e contos. O escritor gaúcho teve suas obras publicadas em mais de vinte países e foi reconhecido quatro vezes com o “Prêmio Jabuti”, pelas obras: *O olho enigmático* (1986), categoria Contos; *Sonhos tropicais* (1992), categoria Romance; *A mulher que escreveu a Bíblia* (1999), categoria Romance; e *Manual da paixão solitária* (2008), categoria Romance, também escolhida obra de Ficção do Ano. O escritor colaborou por décadas como cronista em vários órgãos da imprensa no país, como a *Folha de São Paulo* e o *Jornal Zero Hora* (RS), e foi membro da Academia Brasileira de Letras a partir de 2003.

Na primeira etapa de sua carreira literária, Scliar elabora obras que tematizam a cidade de Porto Alegre e o Estado do Rio Grande do Sul. Isso foi pontuado por Regina Zilberman (2009), que dá o nome a essa fase de suas publicações, entre 1972 e 1977, de “os romances de Porto Alegre”, entre os quais se destacam *Os mistérios de Porto Alegre* (cujo título alude a *Os mistérios de Paris*, de Eugene Sue, e a *Mistérios de Lisboa*, de Castelo Branco), livro constituído de contos e crônicas, de 1975, e *O ciclo das águas*, de 1977, reconhecido com o segundo lugar no Prêmio Érico Veríssimo de Romance. O segundo período dessa cronologia literária atribuída à sua obra dá-se pelo predomínio temático na interface judaísmo-Brasil, abarcando obras como *O centauro no jardim* (1980), *A estranha nação de Rafael Mendes* (1983) e *Cenas da vida minúscula* (1991), publicadas entre 1980 e 1991. O terceiro período abrange *A mulher que escreveu a Bíblia* (1999), *Os vendilhões do Templo* (2006) e *Manual da paixão solitária* (2008), e se caracteriza por “privilegiar personagens sugeridas pela leitura da Bíblia hebraica” (*Ibidem*, p. 116).

Na sua maneira de produzir, muitas vezes num só ano o autor publica obras de gêneros diferenciados. Isso se nota em 1984, ano em que, além do livro de crônicas *A massagista japonesa*, Scliar lança literatura infanto-juvenil (*Memórias de um aprendiz de escritor*) e as antologias *Dez contos escolhidos* e *Os melhores contos de Moacyr Scliar*. Em 1995 e em 2001, o mesmo

fenômeno é percebido: no primeiro, foram editadas as crônicas do *Dicionário do viajante insólito* e os infantojuvenis *Um sonho do caroço do abacate* e *Introdução à prática amorosa*; em 2001, verifica-se a publicação das crônicas de *O imaginário cotidiano* junto ao infantojuvenil *Ataque do comando P. Q.* Nota-se, também nos casos assinalados, que a atuação do Scliar cronista ocorre de forma contínua e paralela à publicação de obras nos demais gêneros literários.

Com relação às crônicas, ele as escreveu por aproximadamente quarenta anos: publicou as primeiras no início dos anos 1970. Dos diversos gêneros a que se debruçou, a crônica de jornal esteve presente em sua trajetória do começo ao final, sendo, inclusive, “os últimos textos que o autor legou a seus leitores” (ZILBERMAN, 2012, p. 9), no início de 2011. A atenção neste artigo recai justamente sobre esse nicho da produção do escritor, as crônicas, e entre elas as crônicas médicas, no que poderia entender-se como manifestação de sua experiência de vida em sua literatura, visto que Scliar formou-se em medicina, em 1962, e doutorou-se em Saúde Pública com a tese *Da Bíblia à psicanálise: saúde, doença e medicina na cultura judaica*. Com relação à repercussão da atuação na medicina em sua literatura, pode-se considerar que tenha dado os primeiros passos de seu percurso literário ainda em tempos de faculdade, visto que, na seção “Sobre o autor” do livro *Dicionário do viajante insólito*, lê-se que “ao ingressar na faculdade de medicina, [Scliar] começou a escrever para o jornal *Bisturi*” (SCLIAR, 2011, p. 133).

Do universo de suas crônicas, selecionam-se aquelas com temas ligados à medicina, a partir das quais se analisa a recorrência da menção ao cinema nessa parte da produção do autor. Expandindo a recorrente proposta de que o escritor fez uso de suas vivências (SZKLO, 1990; WALDMAN, 2003; ZILBERMAN, 2009) e de assuntos de interesse para compor suas obras – a cidade e o bairro onde cresceu, o judaísmo, a imigração, a atuação como médico e a formação em saúde pública – destaca-se que, como aspecto importante na segunda metade do século XX no país, as mídias, e entre elas o cinema, são alvo da atenção do escritor, aparecendo nas crônicas médicas como recurso composicional, no intertexto estabelecido com obras filmicas (GOMES, 2009) e como referência intermídiática (RAJEWSKY, 2012).

Identifica-se que o escritor recorre ao cinema como motivo e recurso composicional e de ambientação, tomando-o como parte da paisagem cultural da cidade e da sociedade de seu tempo, como algo a ser considerado como parte da cena e da vida de todos os dias com a qual tece suas crônicas. A sua proximidade das mídias eletrônicas e da cultura popular e midiática se manifesta, também, no fato de escrever para jornal, ademais de trazer o cinema como motivo em sua obra.

Quanto à combinação de elementos temáticos, ou seja, do que se manifesta em sua obra como seleção (incluir e excluir) e hierarquia (no sentido de ser mais ou menos central na composição) de certos elementos da realidade e da experiência social, interessa explorar se a vivência do escritor como médico se expressa em sua obra, e sobre a intersecção que estabelece dos temas ligados à saúde com a menção ao cinema. Observa-se que Scliar valeu-se de seus conhecimentos médicos como material para as suas criações literárias, o que se verifica, por exemplo, no fato de o escritor gaúcho ser autor de 21 obras com temática médica. Por essa trajetória, diz-se que Scliar está inscrito numa linhagem de médicos-escritores, como Pedro Nava (1903-1984) e Guimarães Rosa (1908-1967). No que tange especificamente às crônicas, essa temática aparece esparsa em seus livros, é tema recorrente de muitas das suas publicações, assim como esteve regularmente presente nas que publicou exclusivamente em jornal.

Na elaboração desse artigo, as maiores dificuldades encontradas na etapa de procura, uma vez que nem todas as crônicas de Scliar estão publicadas em livros. Devido a isso, foi necessária uma minuciosa pesquisa na Internet para encontrar as demais crônicas, tendo em vista que a grande maioria das suas crônicas foram escritas durante o período que ele trabalhou nos jornais *Zero Hora* e *Folha de São Paulo*. Ou seja, das muitas crônicas publicadas nesses jornais, ainda há aquelas que ainda não foram compiladas em livros. Por isso, foram desenvolvidas pesquisas constantes no site do autor e na Internet de um modo geral a fim de se reunir todos os textos nos quais o autor menciona o racismo. A leitura dos textos encontrados levou à constatação de que o escritor gaúcho menciona o racismo não somente nas suas crônicas médicas, pois ele também desenvolve essa temática quando escreve sobre outros assuntos como o futebol e a política. Todavia há que se observar que, como o cerne dessa pesquisa foi o racismo nas crônicas médicas, essa foi a abordagem estritamente seguida tanto na investigação como na divulgação dos resultados obtidos. As crônicas médicas são os textos que abordam diretamente questões relacionadas à saúde ou à atuação dos médicos.

II. A CRÔNICA E O CRONISTA MOACYR SCLIAR

No ensaio *Cronista e leitor*, Zilberman afirma que a crônica é um gênero de difícil demarcação, pois pode tratar de fatos contemporâneos, narrar tanto histórias verídicas como imaginárias, relembrar pessoas e acontecimentos, realizar comentários sobre literatura ou outras expressões culturais. Por sua lógica de produção e de consumo, a crônica, assim como o folhetim, é constitutivamente um gênero poroso à

atualidade (MARTÍN BARBERO, 1987), ou tem porosidade de assuntos, segundo Granja (2015). A sua primeira acepção, explica Fischer (2004), derivava do latim *chronica* – relato, história escrita ou narrativa de fatos dispostos em ordem cronológica –, mas o termo migrou desde o domínio do relato histórico para o literário, e logo depois passou a ser utilizado na literatura em um gênero específico ligado ao jornalismo.

Dentre os escritores das crônicas modernas está Moacyr Scliar, considerado um dos maiores cronistas brasileiros, escrevia regularmente em jornais de circulação regional e nacional. O escritor foi um defensor da crônica na literatura brasileira, considerando-a um gênero literário importante; seu uso, contudo, era mais ou menos imediato, diferente da ficção (romance), gênero no qual uma boa ideia pode ficar amadurecendo por anos (FISCHER, 2004, p. 7-17). Parte de suas crônicas foram inspiradas em matérias de jornais. Em seu processo de criação, dizia precisar de um elemento desencadeante e, nesse processo, a notícia de jornal cumpria esse papel, dizia Scliar:

[...] pode ser um episódio histórico, uma pessoa que conheci, uma história que me contaram, uma notícia de jornal.... Daí em diante é uma incógnita. Sou muito rápido escrevendo para jornal, mas quando se trata de uma ficção mais longa é diferente; aí períodos de rapidez se alternam com outros de muita lentidão, resultante de dúvidas que vão desde a questão do foco narrativo até a incerteza quanto à validade do projeto [...] (ZILBERMAN, 2009, p. 118).

O trecho é referente a uma entrevista concedida pelo escritor em 2009, quando há décadas escrevia e publicava em jornais. Também em sua autobiografia, intitulada *O texto, ou: a vida*: uma trajetória literária, fala sobre seu processo de criação e sobre as diferentes rotinas criativas relativas à elaboração (i) de crônicas para serem publicadas por jornais e (ii) de romances, concebidos para serem lidos em livros.

É uma experiência no mínimo curiosa passar da página do livro para a página do jornal. Sim, em ambos os casos trata-se de texto impresso, destinado a um público, mas as diferenças são grandes, e históricas. [...] Os escritores escreviam para a eternidade; os jornalistas estavam presos aos assuntos do momento, nem sempre agradáveis. [...] Os escritores podiam fazer pesquisas formais, mesmo que estas resultassem em textos obscuros; os jornalistas tinham, e têm, a obrigação da clareza. (SCLiar, 2007a, p. 237-238).

O fragmento acima dialoga com parte do que Scliar menciona na entrevista intitulada *Falar com Deus?* Só se *for com ligação a cobrar*, na qual esclarece que não se considera jornalista, mas sim um colaborador de jornal que abomina ouvir gente que deprecia o jornalismo. Ele afirma: “[...] o meu convívio com o jornalismo foi contínuo. Aprendi, em primeiro lugar, a fazer um texto enxuto. Aprendi a ir direto ao ponto,

entregar o texto na hora”, além de precisar escrever “com muita antecedência por causa dos problemas de ilustração”. Relacionando essas considerações à explanação acerca do embate entre o livro e o jornal, Scliar pondera que no país “surgiu um gênero que se tornou o elo de ligação entre literatura e o espaço jornalístico: a crônica”. No jornal, a crônica é “um respiradouro, uma brecha na massa não raro sufocante de notícias” (SCLiar, 2007a, p. 239).

Este trabalho vale-se do depoimento de Scliar não como intento de, como afirma Iser (2013) em *O fictício e o imaginário*, indagar sobre a psique do autor para desvendar suas intenções. Tal como sustenta Iser (2013, p. 37), entende-se que seja “provável que a intenção não se revele nem na psique nem na consciência, mas que possa ser abordada apenas através das qualidades de manifestação que se evidenciam na seletividade do texto face a seus sistemas contextuais”. Aqui o testemunho de Scliar é entendido, de tal forma, como elemento transtextual, no sentido de Genette (2006), como forma estendida de paratextualidade ou metatextualidade, que acrescenta e desdobra aspectos de seus processos de criação, e repercute em sua fortuna crítica.

Em termos de publicações, a atuação de Scliar como cronista começa em 1984, ano em que é lançada a primeira edição de *A massagista japonesa*, seguida, em 1989, por *Um país chamado infância*. Em 1995, vem à lume as crônicas do *Dicionário do viajante insólito*, que recebeu o Prêmio Açorianos, e um ano depois chega às livrarias *Minha mãe não dorme enquanto eu não chegar*. Em 2001, edita *O imaginário cotidiano*, também laureado com o Prêmio Açorianos, e neste mesmo ano publica *A língua de três pontas: crônicas e citações sobre a arte de falar mal* e *A face oculta: inusitadas e reveladoras histórias da medicina*. Em 2004, trabalhando num projeto da Editora Global, Fischer seleciona textos para o livro *Moacyr Scliar*, expondo essa vertente do escritor para a Coleção Melhores Crônicas. Em 2005 lança *O Olhar Médico*, em 2009, *Histórias que os jornais não contam*. Com a morte do autor, em 2011, as publicações passam a ser póstumas, e Zilberman seleciona crônicas para as seguintes compilações: *A poesia das coisas simples* (2012) e *Território da emoção: crônicas de medicina e saúde, A banda na garagem* (2014) e *A nossa frágil condição humana* (2017). Desses, apenas *Território da emoção*, *A face oculta* e o *Olhar médico* reúnem crônicas médicas no todo, enquanto os livros de 2012 e de 2014 trazem algumas crônicas médicas esparsas entre textos de outro enfoque.

Por cerca de 40 anos, do início dos anos 70 a 2011, Moacyr Scliar publicou crônicas regularmente no jornal *Zero Hora*, do Rio Grande do Sul. Publicou nos cadernos *Vida* e *Donna*, na coluna *A Cena Médica*, mantendo uma coluna semanal no caderno de *Notícias*. Os temas, como sugerem as variadas editorias e

suplementos onde publicava, eram diversos, abarcando desde questões de saúde, vida familiar, passando também por assuntos cotidianos da cidade e do estado, reservados principalmente à coluna das terças-feiras, na página 2 do jornal. Sobre sua participação para o Caderno *Vida* do Jornal *Zero Hora*, ele afirmou tratar-se de um trabalho importante, porque é uma forma de escrever sobre Medicina de maneira mais humanista. Já no jornal *Folha de São Paulo*, Scliar escreveu a partir de 1993, na seção *Cotidiano*, com crônicas inspiradas em notícias de jornais, sendo que algumas delas são crônicas médicas. Atuou como cronista, ainda, no *Correio Braziliense*, do Distrito Federal, de 2006 a 2011, escrevendo para o caderno *Diversão e arte*.

Examinando as crônicas de Scliar publicadas na *Folha de São Paulo*, Lealis Guimarães (1999, p. 161) toma como *corpus* de análise cinco crônicas e aponta que, nelas, “o humor é inerente à criação literária, manifestando-se através do procedimento paródico”, que se combina, em seu efeito estético, à exploração de “assuntos insólitos, ou constrangedores, do cotidiano veiculado pela notícia, para promover efeitos tragicônicos”. Com respeito à leitura, com suas crônicas passa-se “ao mundo do imaginário e, nesse transporte do real para o fictício, [...] que funciona como crítica às ordens e valores predeterminados”. Do *corpus* analisado por Guimarães (1999), o único texto que se enquadra no perfil de crônica médica é *Consultando no posto de saúde fantasma*, elaborada a partir de uma notícia desanimadora sobre o sistema de saúde, na qual nota-se um “humor crítico diante do fato noticiado” (GUIMARÃES, 1999, p. 121-122).

O imaginário cotidiano, Moacyr Scliar (Coleção Melhores Crônicas), *Histórias que os jornais não contam* e *A banda na garagem* têm em comum reunirem crônicas inspiradas em notícias de jornal. Esses livros apresentam a seguinte disposição: logo após o título da crônica, é apresentada a notícia que serve de inspiração e, em seguida, vem o texto de Scliar. Algumas das crônicas desses livros apresentam temáticas relacionadas à Medicina, que são compostas de personagens em situações nas quais se reportam superficialmente aspectos da Medicina. Desses textos, pode-se mencionar “Ele (ex-ela) e ela (ex-ele)”, cujo narrador cria uma história sobre as dificuldades de adaptação vivenciadas por um casal que muda de sexo. Esse texto integra Moacyr Scliar (2004, p. 215-216), “uma reunião de crônicas que o destacam no gênero com maior nitidez” (HANCIAU, 2012, p. 118). Sobre a pertinência de classificá-los como crônicas, os textos inspirados em manchetes de jornais, no entender de Zilberman (2012, p. 16), devem ser assim considerados, pois “crônicas são também narrativas de eventos efetivamente ocorridos ou imaginários”. Para Scliar, porém, por serem ficcionais, esses textos não seriam crônicas. Em entrevista concedida a Fischer, o

escritor comenta sobre os limites entre crônica e outros gêneros:

[...] acho, sim, que os limites da crônica são claros. Crônica não é conto: é um comentário sobre a realidade, portanto exclui ficção (ainda que, na Folha de São Paulo, eu escreva um texto ficcional baseado em notícias de jornal. Mas eu não o chamo de crônica. Nem de conto. É uma espécie de crônica ficcionalizada). Crônica não é um gênero tão erudito quanto o ensaio. Crônica não é tão factual quanto o artigo (sobre política, por exemplo). (SCLIAR *apud* FISCHER, 2011, p. 102).

O *Dicionário do viajante insólito* reúne uma coletânea de crônicas inspiradas em viagens de Scliar, e contém apenas um texto no qual há referência à medicina: *G de Gueixa*, cujo personagem sonha em se deitar com uma gueixa. Seu chefe o convida para uma viagem ao Japão e, em seu quarto de hotel, ele “solicita” uma gueixa. A visitante é velha e cega, ele tenta se desvencilhar dela e machuca a coluna, necessitando assim ceder aos cuidados da gueixa, que era, de fato, apenas massagista (SCLIAR, 2011, p. 35-38). Publicada em 1996, *Minha mãe não dorme enquanto eu não chegar* é outra obra que dispõe uma única crônica sobre saúde. Intitulada *Pietá*, que narra o sofrimento do escritor com a perda de sua mãe, acometida por um câncer, e de sua impotência, como médico, perante a situação (SCLIAR, 1996, p. 44-46).

Em *A massagista japonesa*, há textos que remetem a questões relacionadas à saúde. A narrativa que intitula o livro é, com ligeiras modificações, a mesma de “*G de Gueixa*”, de o *Dicionário do viajante insólito*. Há outros textos nos quais são contadas histórias entremeadas de resquícios de conselhos médicos, como *Ponte de safena*, *A um bebê com cólicas*, *Data certa*, *Decisão*, *O homem que corria* (SCLIAR, 1984, p. 23-24, 53-54, 75-78, 107-109). A *língua de três pontas: crônicas e citações sobre a arte de falar mal* (2001) dispõe um capítulo intitulado *Falando mal da medicina*, no qual Scliar apresenta um histórico da evolução da medicina, seguido das citações que coligiu relacionadas à desconfiança nutrida por muitos sobre a atuação dos médicos (SCLIAR, 2001, p. 54-66).

Observam-se, em suas crônicas médicas, como no dizer de Iser (2013, p. 37), as “qualidades de manifestação que se evidenciam na seletividade do texto face a seus sistemas contextuais”, identificando que a prática médica serviu de mote para sua literatura. Sobre a presença dessa prática em suas obras, Hanciau (2012, p. 114) afirma que “o texto exato, objetivo e cortante, Scliar certamente herdou dos prontuários médicos, que escreveu ao longo da vida e que, embora frios, trazem implícitas todas as dores do mundo. Os anos de Medicina ensinaram a diagnosticar a insondável criação literária”.

Na trajetória literária de Scliar, as crônicas não são secundárias. A inserção do escritor na imprensa é

notória, tanto que Zilberman (2017, p. 5) observa que “além de duradoura, a participação de Scliar no jornalismo gaúcho, em especial em *Zero Hora*, foi intensa, resultando em mais de 5 mil crônicas”. Antes do *Zero Hora*, escreve para o jornal universitário *Bisturi*, quando cursava Medicina, e, desde 1984, publica suas crônicas também em livro. Ao todo, foram 37 anos de produção contínua no gênero, e em parte dessa produção se verifica a sistemática tematização da medicina e o intertexto com o cinema na composição dos textos, muitas vezes de forma associada. Combinadas às três fases temáticas atribuídas à sua literatura – a cidade de Porto Alegre, a interface judaísmo-Brasil e a releitura de personagens bíblicas –, neste trabalho se propõe que, no tocante às crônicas, há outros dois temas significativos que marcam sua obra, as crônicas médicas: o tema da saúde e da prática da medicina, por um lado, e o intertexto com filmes e a produção cinematográfica, por outro.

III. O RACISMO NAS CRÔNICAS MÉDICAS DE MOACYR SCLiar

Ao longo da sua trajetória, Scliar produziu poucas crônicas médicas abordando o racismo, mas nelas a sua mensagem antirracista ficou bem delineada. Por ser médico e professor de História da Medicina, o escritor gaúcho denunciou o preconceito racial nesse meio. Nesse sentido, veio a lume o texto *O amante latino: raízes biológicas* no qual Scliar relembrava uma fala proferida pelo cientista James Dewey Watson (1928), laureado com o Prêmio Nobel de Medicina quando tinha 34 anos. Conferencista reverenciado, aos 72 anos Watson “escandalizou o público na Universidade de Berkeley com suas — para dizer o mínimo — heterodoxas ideias sobre sexualidade” (SCLiar, 2001b, p. 157). Watson afirmou que homens com mais melanina – o pigmento que dá cor escura à pele – teriam mais desejo sexual que os de pele clara. “Nada disso, naturalmente, está confirmado”, mas veio “ao encontro de dois estereótipos norte-americanos. Um deles: os negros teriam um desejo sexual excessivo, especialmente por mulheres brancas. O número de infelizes linchados pela Ku Klux Klan com base nesse argumento [...] foi enorme” (SCLiar, 2001b, p. 157-159).

Na visão de Scliar, James Watson quis dar base científica a um estereótipo, mesmo sendo notório que “sexo não depende só de moléculas” (SCLiar, 2001b, p. 159). Sabe-se que o estereótipo é baseado no senso comum, que é utilizado para definir/categorizar um indivíduo quanto a sua identidade ou comportamento a partir do seu gênero, condição social, religião, cultura e entre outros. Há diversos tipos de estereótipos, na crônica nota-se o estereótipo racial que, assim como os demais, é inaceitável. Retomando o contexto da crônica, observa-se que outro estudioso

norte-americano denunciou o quanto James Watson foi vil ao querer dar base científica a um preconceito fundamentado em estereótipos. Após a polêmica, Watson precisou se desculpar perante a comunidade científica e também perante a sociedade. Felizmente houve essa refutação, pois esses equívocos perniciosos provêm do período colonial e foram usados como justificativas para muitas outras injustiças, como os estupros praticados contra mulheres negras nas sociedades escravistas: “vistas como portadoras de uma sensualidade exacerbada ou como mulheres passivas – interpretação adotada pelo abolicionismo inglês [...] –, quase sempre a culpa do abuso era atribuída às vítimas” (MACHADO, 2018, p. 338).

É evidente que Scliar deixa bem delineada sua perspectiva antirracista na referida crônica, mas também se percebe, em outra parte dela, o humor que costuma acompanhar os escritos do médico gaúcho. Ele admite que a fala equivocada de Watson pode incluir uma “versão mais *light*, mais aceitável — e mais conveniente”. Nesses termos, Scliar destaca o mito da

história do amante latino, consagrado por Hollywood. A primeira figura dentro do paradigma foi o lendário Rodolfo Valentino (1895-1926). Nascido Rodolfo d'Antonguolia, era um imigrante vindo do sul da Itália, que trabalhou como dançarino até ser descoberto pelo cinema, tornando-se o primeiro ator com *sex appeal* que não correspondia ao tipo americano clássico. De imediato, a indústria cinematográfica descobriu o filão. E também a indústria do turismo. A Cuba de Fulgencio Batista, o Caribe em geral, [...] tornaram-se destinos preferenciais para mulheres americanas de meia-idade, endinheiradas e sexualmente insatisfeitas [...] Nem todos (e nem todas) eram fãs do amante latino. Em 1936 apareceu na Esquire um artigo da jornalista Helen Brown Norden, [...] que viajara a Cuba em busca de amantes, voltou decepcionada. Os tais latinos, disse, vestem-se mal, bebem demais, não sabem dançar, estão sempre se coçando ou contando anedotas inconvenientes sobre gases. E, por fim, a grande denúncia: fracassam na cama, mesmo fazendo uso dos mais variados afrodisíacos. Norden citava a opinião de uma amiga de Manhattan, para quem, no sexo, “os piores americanos são melhores do que os melhores cubanos”. (SCLiar, 2001b, p. 158-159)

Publicada originalmente em 29 de abril do ano 2000 e posteriormente compilada no livro *Território da emoção* (2013), na crônica *Medicina e racismo* Scliar conta a história do Dr. Cecil Helman que é um médico comunitário e teve uma experiência comovante na África do Sul na época do *apartheid*. Nesse texto, ele relata que esteve em um hospital onde existiam as alas dos brancos e as dos “não brancos”. O hospital apresentava uma maneira de organização nitidamente racista a tal ponto de até os termômetros destinados aos pacientes brancos serem separados dos utilizados pelas pessoas negras. Como forma de protesto contra essa discriminação, um dos médicos propositalmente invertia os termômetros. Sua intenção era reafirmar – ao



menos para si – que todos somos iguais independentemente da cor da pele (SCLiar, 2013, p. 61-62).

Outro texto no qual Scliar aborda a temática do racismo é *Em busca de tolerância*. Publicada originalmente em 15 de abril de 2006 e atualmente disponibilizada apenas no site do escritor, nessa crônica o intelectual gaúcho escreve sobre o filme que conta a história de um menino que é cristão e foi obrigado a se tornar judeu devido a falta de alimento e os bombardeios em seu território. Ele enfrentou diversos problemas para conseguir sobreviver e tornar-se médico, porém, ao alcançar esse objetivo, o preconceito contra a cor de sua pele se torna um dos seus maiores obstáculos.

Em uma tentativa de fazer com que seu filho de apenas nove anos sobrevivesse, sua mãe o batizou como judeu dando-lhe o nome de Schlomo (Salomão em hebraico) e o colocou para adoção, ele foi adotado por uma família de Tel Aviv (capital de Israel). Com isso, Schlomo consegue estudar para medicina, mas lá ele começa a ser chamado de *Kushi* (negro em hebraico). Essa história foi transposta para o cinema. Tornou-se um filme na França conhecido como “Um herói de nosso tempo”, foi lançado em 2005 e tem uma duração de 2 horas e 22 minutos, esse filme teve o apoio de diversas instituições, de professores, de ONGs. Scliar ainda diz que dificilmente iremos encontrar um filme que tenha um apelo tão grande à coexistência e à tolerância.

Na época em que se passa a história do filme, o preconceito em relação à cor da pele e à religião era demasiadamente alto. Scliar resolveu trazer essa película como indicação para a população, para que eles percebessem o quanto as pessoas naquele país sofriam com todo aquele preconceito, fosse pelo racismo, pela intolerância religiosa ou pelas guerras, eles não tinham paz em momento algum. Esse filme é um espetáculo, a história passa em dois países que a realidade era cruel, nele não existe nenhum tipo de humor, apenas a realidade que aqueles países viveram e vivem até os dias de hoje. No passado a África sofreu com a fome e com o racismo; infelizmente pouco mudou, e Scliar queria mostrar isso para a sociedade.

IV. CONSIDERAÇÕES FINAIS

Conclui-se que nas crônicas médicas nas quais Scliar aborda o racismo a postura desse escritor é a de se posicionar contra o preconceito, ou seja, Scliar é nitidamente antirracista. Num desses textos, o escritor demonstra-se preocupado com o enraizamento do racismo no nicho médico no sentido de que até mesmo cientistas renomados podem vir a incorrer nessa prática repugnante. Por outro lado, o médico da crônica “Medicina e racismo” agia de modo contrário aos seus colegas racistas, pois de forma intencional invertia os

termômetros destinados a pacientes brancos e pacientes negros. Sua atitude pode ser compreendida como uma forma de resistência a uma prática racista da qual ele é um dos poucos que não concorda no nicho médico do qual faz parte. Noutra crônica percebe-se a sociedade agindo com preconceito para com um indivíduo que tanto se dedicou para se graduar em Medicina e servir às pessoas. O cinema, constante da atenção do escritor, comparece nas crônicas médicas como um importante recurso composicional, no intertexto estabelecido com obras filmicas, sinalizando para o leitor o quanto a sétima arte pode ajudar no processo de conscientização contra o racismo.

É necessário denunciar e combater a prática racista e a literatura de Scliar faz-se engajada num importante projeto humanista e humanizador no sentido de conscientizar a sociedade a erradicar esse retrocesso. Scliar esforçou-se muito nesse projeto e nossa exposição se debruçou em delinear essa ação meritória.

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Dermatologic Manifestations in Patients with Metabolic Syndrome in Brazil

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Abstract- Metabolic syndrome (MS), a cluster of cardiovascular risk factors associated with increased mortality, exhibits systemic manifestations in various organs, including the skin. This study aimed to investigate the prevalence of dermatological manifestations in patients with MS attending primary healthcare units staffed by Family Health residents in Gurupi, Tocantins, Brazil. This descriptive, cross-sectional epidemiological study enrolled 93 men and women aged between the ages 25 and 60 y across four Basic Health Units and used a questionnaire administered during medical consultations. In total, 69.89% of samples exhibited dermatological manifestations. Morbid obesity was the leading factor linked to MS and skin alterations, with 100% of these patients presenting with some form of dermatosis, the most identified cutaneous manifestations by prevalence were erythematous lesions, papules and plaques, vesicles and blisters, scaling, and changes in pigmentation.

Keywords: *cutaneous manifestations; family health; health services; primary health care.*

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Dermatologic Manifestations in Patients with Metabolic Syndrome in Brazil

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Maykon Jhuly Martins de Paiva ^c, Sávia Denise Silva Carlotto Herrera ^c & Marcos Gontijo da Silva ^d

Abstract- Metabolic syndrome (MS), a cluster of cardiovascular risk factors associated with increased mortality, exhibits systemic manifestations in various organs, including the skin. This study aimed to investigate the prevalence of dermatological manifestations in patients with MS attending primary healthcare units staffed by Family Health residents in Gurupi, Tocantins, Brazil. This descriptive, cross-sectional epidemiological study enrolled 93 men and women aged between the ages 25 and 60 y across four Basic Health Units and used a questionnaire administered during medical consultations. In total, 69.89% of samples exhibited dermatological manifestations. Morbid obesity was the leading factor linked to MS and skin alterations, with 100% of these patients presenting with some form of dermatosis, the most identified cutaneous manifestations by prevalence were erythematous lesions, papules and plaques, vesicles and blisters, scaling, and changes in pigmentation. The high prevalence of dermatological manifestations in patients with MS with pseudoacanthosis nigricans being the most frequent, can alert healthcare professionals to suspect MS and prevent long-term complications.

Keywords: cutaneous manifestations; family health; health services; primary health care.

I. INTRODUCTION

Metabolic syndrome (MS) presents a considerable challenge in primary care because of its complex nature and negative impact on health. This chronic, non-communicable disease (NCD) clusters metabolic disorders, including dyslipidemia, glucose intolerance, and insulin resistance (IR) [1, 2], doubles the risk of death and quintuples the risk of developing type 2 diabetes mellitus (T2DM) [3]. According to the International Diabetes Federation (IDF), approximately one-quarter of adults suffer from MS globally and face two and three times the risk of death and stroke, respectively, compared with the general population [4, 5].

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Studies in South America revealed a wide range of MS prevalence, from 12.3% to 44.6%, which is influenced by the chosen diagnostic criteria. In Brazil, the reported prevalence is 29.6% [6], for adults, even soaring to 40% in those over 60 years of age [7]. However, some studies, relying on self-reported numerical criteria, estimate a lower prevalence of 9%. This discrepancy is likely due to underestimation, highlighting the importance of standardized assessments for accurate diagnosis and a comprehensive understanding of MS prevalence and its components [8, 9].

A prevalence study in the northeastern region revealed that 50.7% of adults with T2DM also have MS. This dual burden, characterized by the accumulation of cardiometabolic changes, inflicts extensive economic and social losses [2, 10]. In addition, genetic predisposition, IR, abdominal obesity, physical inactivity, unhealthy diet, chronic inflammation, and hormonal imbalances could all contribute to the MS development [6]. The latest health report released by the World Health Organization in 2018 highlights the rising prevalence of chronic NCDs, such as MS and emphasizes the need for continued research on their risk factors to inform effective control measures [11].

MS involves a cluster of metabolic alterations including arterial hypertension, abdominal obesity, dyslipidemia, and impaired glucose metabolism. Although several studies have estimated MS prevalence using the Adult Treatment Panel III criteria (NCEP, 2001), it is recommended to adopt a standardized set of criteria for improved comparisons and study effectiveness [12].

According to the IDF criteria for diagnosing MS, an individual must have a high waist circumference and at least two of the following: triglycerides (TG) ≥ 150 mg/dL, high-density lipoprotein cholesterol < 40 mg/dL (men) or < 50 mg/dL (women), blood pressure $\geq 130/85$ mmHg or use of antihypertensive drugs; and fasting glucose ≥ 100 mg/dL or a previous diagnosis of T2DM [4, 13].

As obesity is a component of MS, individuals with obesity often have elevated levels of glucose, insulin, IR, or inflammatory markers [14]. Chronic inflammation and increased adipose tissue lead to an increase in inflammatory signals, which trigger IR, boost glucose, TG, and low-density lipoprotein, while

hyperinsulinemia promotes renal sodium reabsorption and stimulates the sympathetic nervous system, leading to endothelial cell dysfunction and inhibition of nitric oxide, a vasodilator [15, 16].

The link between the skin and IR is intriguing, as certain hormones, such as alpha-melanocyte-stimulating hormone, participate not only in melanin production, but also in insulin signaling, impacting food regulation [17, 18]. Therefore, the mechanisms affecting insulin sensitivity also influence skin equilibrium [14, 19, 20].

Hyperinsulinemia, often triggered by insulin receptor insensitivity, stimulates keratinocyte and fibroblast growth by activating insulin growth factor-1 receptors. This growth can manifest in various skin conditions. Chronically high levels of pro-inflammatory molecules, on the other hand, can induce IR, leading to microvascular dysfunction. This includes the accumulation of harmful advanced glycation end products, impaired epithelial homeostasis, and reduced blood flow and nutrient supply to the skin [14, 21, 22].

This microcirculatory alteration is an established mechanism in diseases such as obesity, T2DM, arterial hypertension, and MS [23–25]. Furthermore, even in the prediabetic or normoglycemic stages, metabolic dysfunction preceding hyperglycemia can cause damage due to increased insulin resistance, oxidative stress, and activation of inflammatory pathways [24, 26]. Therefore, cutaneous manifestations, common with metabolic alterations, can potentially serve as an early warning sign for MS or indicate its severity [14, 19, 21]. This two-way street arises from shared biomarkers, such as hyperinsulinemia, oxidative stress, and inflammatory markers, including interleukin-6. Studies have confirmed the elevated levels of these markers in various cutaneous pathologies and MS, highlighting their strong association.

Strong associations have been established between MS and conditions, such as acanthosis nigricans, acne, and psoriasis. Acrochordons, androgenetic alopecia, hidradenitis suppurativa, recurrent aphthous stomatitis, and hirsutism also show potential links with MS, whereas other conditions, such as diagonal earlobe crease, Garrot's nodules, rosacea, lichen planus, vasculitis, scleroderma, and keratosis pilaris, have demonstrated moderate connections [14, 16, 27–30].

Although reports have indicated a correlation between MS and dermatological alterations, the underlying mechanisms remain poorly understood. This lack of a complete understanding underscores the need for further exploration of this connection. Primary healthcare plays a fundamental role in the Brazilian healthcare system, encompassing a broad segment of the population, and directly impacting health promotion. However, the lack of targeted investigations into this specific reality can compromise the quality of the

medical care provided, as interventions may not adequately reflect local needs and characteristics. Thus, it is imperative to address this gap through studies addressing relevant health issues in Brazilian primary healthcare to provide a solid foundation for more effective and locally adapted clinical practices [16, 31].

Therefore, our study aimed to assess the prevalence of dermatological manifestations associated with MS in patients attending primary healthcare units in Gurupi, Tocantins, where Family Health residents work. By meticulously examining the profile of this population, we aimed to achieve several key objectives: track the frequency of both MS and its associated dermatological manifestations, inform the development of proactive methodologies, empower healthcare professionals through targeted engagement and training, and facilitate the efficient resolution of the challenges posed by this intriguing interplay between metabolic dysfunction and skin health.

II. MATERIALS AND METHODS

The study was conducted from August to November 2021 as a descriptive cross-sectional epidemiological investigation. We selected Gurupi, located in the southern Tocantins, as the study setting. Gurupi, with an estimated population of 86,647, according to the Brazilian Institute of Geography and Statistics, is the state's third-largest city and serves as a regional hub for the south.

Four basic health units (*Unidades Básicas de Saúde* [UBS]) participating in the University of Gurupi's Medical Residency Program for Family and Community Health were selected. These units, strategically chosen for their large service area, strong professional communication network, and potential for future community-wide interventions, were: Hélio Naves Cansado (Vila Íris), João Manoel dos Santos, Ulisses Moreira Milhomem (Pedroso), Miguel Peres de Carvalho (Vila Nova).

After obtaining authorization from the Municipal Health Department and approval from the Research Ethics Committee of University of Gurupi (opinion number: 4.880.322), informed consent was obtained. All volunteer participants who completed the questionnaire during their medical consultations signed an informed consent form (ICF). The study population included adults (> 18 y) of both sexes, pregnant women, and older adults residing within the selected UBS catchment areas who signed the ICF. The investigated public corresponds to 39% men and 61% women. Patients under 18 years old, those declining informed consent, and individuals not residing within the UBS areas were excluded. Our sample comprised all UBS patients seen by resident physicians who either had a preexisting MS diagnosis or received MS confirmation through questionnaire administration.

Owing to the COVID-19 pandemic and restrictions on elective consultations, the number of patients examined in the four selected units was lower than anticipated during the study period (August to November 2021). Approximately 5,920 services were provided during these 4 months. Given the estimated 30% prevalence of MS in the Brazilian population (NCEP, 2001), this would yield a potential study population of 1,776 individuals. Based on a predetermined sample size calculation with a 5% margin of error and a 95% confidence interval (<https://calculareconverter.com.br/calcular-amostral/>), 316 participants were recruited. However, the final sample size of 93 represented only 29.43% of the planned target, owing to the impact of the pandemic.

Following the administration of the questionnaire, data were entered into an Excel 2016 (Microsoft Corporation, Redmond, WA, USA) spreadsheet. Demographic and clinical characteristics are described in the tables and figures. The chi-square test was used to assess the association between skin diseases and demographic and clinical characteristics, whereas the odds ratio (OR) was used to analyze the risk of acquiring one or more dermatoses. A two-tailed p-value was used in this study and $p \leq 0.05$ was considered statistically significant.

III. RESULTS

The study sample differed from the initial expectations owing to the COVID-19 pandemic. Family Health Strategy teams were directed to prioritize care for suspected COVID-19 cases, thereby significantly reducing the number of consultations available. Consequently, we enrolled 93 patients with MS, representing 29.43% of the anticipated sample size.

Among the participants, 65 (69.89%) exhibited some form of skin alteration. The sample was predominantly female (70.97%), with 52.69% aged between 40 and 60 years. Moreover, a high prevalence of comorbidities was observed (50.54% had diabetes, 73.12% had hypertension, and 84.95% had a waist circumference exceeding 88 cm in women and 102 cm in men). Furthermore, 91.83% of participants were overweight or with obesity (Table 1).

Correlating demographic and clinical factors with the presence of any dermatological alterations revealed an association between morbid obesity (body mass index [BMI] > 40) and skin conditions (Table 1).

Among the identified skin alterations, pseudoacanthosis nigricans was the most common, affecting 33 patients (50.77%). Androgenetic alopecia was observed in 23 patients (33.8%), followed by acrochordons in 19 (29.23%) (Figure 1).

Among the 65 patients who presented with dermatological manifestations, 60% ($n = 39$) exhibited coinfection with multiple skin conditions. Notably, 25

patients (26.88%) had two distinct dermatoses, while eight (8.60%) and six (6.45%) had three and four, respectively (Figure 2).

Further analysis revealed a correlation between the BMI and number of skin conditions per patient. Obese individuals showed a higher propensity for multiple dermatoses, culminating in a 32.8-fold increased risk of four or more skin manifestations in morbidly obese patients (Table 2). To explore the associations between BMI and the number of skin conditions per patient more comprehensively, we performed a multivariate analysis using logistic regression models. This approach allowed us to independently assess the impact of BMI, while controlling for potential confounders. We considered demographic variables, such as age and sex, in addition to other relevant clinical factors.

IV. DISCUSSION

Our study population predominantly consisted of women (66%), of which 68% had systemic arterial hypertension. Age, sex, diabetes, and hypertension did not emerge as significant risk factors for skin alterations among patients with MS. This finding diverges from certain studies suggesting that certain dermatoses exhibit age-specific preferences and correlations with MS [32].

Among our diabetic population, 68.09% had skin alterations and 31.91% did not. This suggests no significant relationship between diabetes and dermatological manifestations, in contrast to a study conducted at a University Hospital in Ribeirão Preto, where a high incidence (81%) of skin lesions in diabetic patients was observed [33]. Other studies also reported a higher frequency of dermatological lesions in patients with diabetes, particularly those with decompensation [32].

Our data revealed a strong association between the BMI and dermatological alterations. Our findings regarding the robust association between BMI and dermatological alterations align with and complement the existing literature. Recent systematic reviews and meta-analyses have investigated the link between MS and skin diseases, providing valuable insights into the intricate relationship between metabolic factors and dermatological conditions.

Sodagar et al. [34] conducted a comprehensive systematic review and meta-analysis that emphasized the association between MS and prevalent skin diseases. These findings contribute to a growing body of evidence supporting the link between metabolic factors and dermatological alterations.

A prospective cross-sectional study by Aryanian et al. [35] delved into the high incidence of MS components in patients with lichen planus, shedding light on the specific dermatological manifestations



associated with metabolic disturbances. Furthermore, an investigation of the global prevalence of MS in patients with psoriasis over the past two decades offers insights into the evolving landscape of these associations [36].

A systematic review and meta-analysis by Ying et al. [37], specifically focusing on the risk of MS in patients with lichen planus, further enriched our understanding of the complex interplay between dermatological and metabolic health. By acknowledging and citing these studies, we aimed to contextualize our findings within the broader literature, reinforcing the significance of the observed association between BMI and dermatological alterations.

None of the MS patients with a BMI <18.5 experienced skin conditions, while the percentages with dermatoses progressively increased across higher BMI categories: 42.86% (18.5–24.9), 72% (25–29.9), 67.57% (30–34.9), and 71.43% (35–39.9). All patients with a BMI >40 had dermatological alterations, suggesting the strong influence of obesity. This association was statistically significant, with morbidly obese patients (BMI >40) demonstrating a 32.8-fold higher risk of having four or more dermatoses than the other groups.

Obesity emerged as a key determinant of the dermatological manifestations in this study. None of the healthy participants exhibited any skin alterations. Among those with ideal weight, less than half developed dermatological alterations. The prevalence of skin changes increased steadily with increasing BMI categories: >50% in both overweight and grade 1–2 obese individuals and 100% in patients with grade 3 obesity.

The three most frequent skin conditions, presented in descending order, were pseudo-acanthosis nigricans (50.77%), androgenetic alopecia (33.8%), and acrochordons (29.23%). Furthermore, 60% of the individuals showed co-occurrence of multiple skin manifestations.

While the multifaceted functions of the skin and their potential correlation with dermatological alterations in MS are well documented, the underlying mechanisms remain incompletely understood and require further investigation [16, 31]. This underscores the importance of healthcare professionals remaining vigilant for dermatological manifestations as potential indicators of MS, thereby contributing to the prevention of future cardiovascular and dermatological complications [32, 38].

This study had certain limitations. First, the sample size was relatively small, which may have affected the generalizability of the findings to a broader population. The cross-sectional nature of the study design implies inherent limitations, including the inability to establish causality and susceptibility to bias owing to the lack of longitudinal follow-up. Furthermore, it is important to recognize the potential selection bias.

Finally, owing to the specific nature of our cohort, generalizing the results to different demographic and geographic contexts is limited. These limitations should be considered when interpreting the findings of this study.

Although existing research suggests a link between skin changes and MS, robust data and comprehensive studies examining this relationship are limited. Filling this knowledge gap by conducting in-depth research will contribute significantly to a more comprehensive understanding of the overall profile and societal impact of this connection.

In conclusion, our study revealed a high prevalence of dermatological manifestations, particularly pseudo-acanthosis nigricans, in individuals with MS. Additionally, we observed a higher incidence of MS in women, individuals with systemic arterial hypertension, and individuals with morbid obesity. Morbid obesity has emerged as a strong risk factor for skin alterations. These findings highlight the importance of healthcare professionals being attentive to dermatological presentations as potential indicators of MS. Early identification and proactive management of MS can help prevent or mitigate long-term complications, including those affecting the cardiovascular and skin systems. Beyond the aforementioned areas, future investigations could benefit from exploring new frontiers at the interface between MS and dermatology. Understanding the molecular mechanisms underlying the skin alterations associated with MS may pave the way for more targeted therapies and specific prevention strategies. Innovative approaches, such as studies on the skin microbiome in individuals with MS, may reveal the connections between metabolic health and skin microbiota composition. Furthermore, considering the emerging role of artificial intelligence in medicine, the application of advanced machine learning techniques can provide more refined insights into dermatological patterns associated with MS. By pursuing these directions, future research can not only expand our knowledge, but also catalyze practical advancements in the clinical approach to MS and its dermatological implications.

V. STATEMENTS AND DECLARATIONS

a) Competing Interests and Funding

The authors state no conflict of interest. This study was supported by the Universidade de Gurupi. The funder had no role in the study design; in the collection, analysis or interpretation of data; in the writing of the report; and in the decision to submit the article for publication.

b) Data Availability Statement

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

c) *Consent to Participate*

Informed consent was obtained from all individual participants included in the study.

d) *Ethics Approval*

Authorization was provided by the Municipal Health Department. The Research Ethics Committee of University of Gurupi (opinion number: 4.880.322) approved this research.

Author Contributions

Conceptualization: Lívia Cavalcante de Araújo. *Methodology:* Rayssa Claudia Oliveira Duarte. *Data curation:* Rafael Vilela Borges. *Writing-Original draft preparation, Visualization, Investigation:* Maykon Jhuly Martins de Paiva. *Supervision, Validation:* Sávia Denise Silva Carlotto Herrera. *Writing- Reviewing and Editing:* Marcos Gontijo da Silva.

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TABLES

Table 1: Demographic and clinical characteristics of the study group with metabolic syndrome-related to dermatological alterations in patients treated at the Basic Health Units of Gurupi-TO, Brazil (2022)

	n. Total	% Total	Dermatological alteration (Yes)		Dermatological alteration (No)	χ^2	p-value
			n.	%			
Age range (nyears)							
>40	17	18.28%	15	88.24%	2	11.76%	3.33 0.07
40–60	49	52.69%	34	69.39%	15	30.61%	0.01 0.91
>60	18	19.35%	11	61.11%	7	38.89%	0.82 0.37
Sex							
Male	27	29.03%	22	78.57%	6	21.43%	1.12 0.29
Female	66	70.97%	44	67.69%	21	32.31%	
Diabetes							
Yes	47	50.54%	32	68.09%	15	31.91%	0.15 0.70
No	46	49.46%	33	71.74%	13	28.26%	
Hypertension							
Yes	68	73.12%	45	66.18%	23	33.82%	1.66 0.20
No	25	26.88%	20	80.00%	5	20.00%	
BMI							
<18.5	1	1.08%	0	0.00%	1	100%	2.35 0.12
18.5–24.9	7	7.53%	3	42.86%	4	57.14%	2.63 0.10
25–29.9	25	26.88%	18	72.00%	7	28.00%	0.07 0.79
30–34.9	37	40.22%	25	67.57%	12	32.43%	0.28 0.59
35–39.9	14	15.05%	10	71.43%	4	28.57%	0.02 0.90
>40	9	9.68%	9	100.0%	0	0.00%	4.29 0.04
Waist circumference (cm). ♀:							
>88 cm, ♂: >102 cm	Yes	79	84.95%	58	73.42%	21	26.58% 3.10 0.08
No	14	15.05%	7	50.00%	7	50.00%	

BMI: Body Mass Index; %: percentage; >: Higher than; <: Lower than; n: Number; χ^2 : Chi-squared; p: Level of significance; ♀: Female; ♂: Male

Table 2: Correlation between the number of dermatoses and BMI in the study group with metabolic syndrome

No. of Dermatoses	BMI	n.	%	OR	CI	χ^2	p
One	<18.5	0	0	-	-	0.35	0.553
18.5-24.9	3	12.05%	0.45	0.23-9.23	0.89		0.900
25-29.9	9	37.50%	1.99	0.73-5.39	1.85		0.173
30-34.9	6	25.00%	0.40	0.14-1.12	3.12		0.077
35-39.9	3	12.50%	0.75	0.19-2.97	0.16		0.685
>40	3	12.50%	1.50	0.34-6.53	0.29		0.587
Two	>18.5	0	0	-	-	0.79	0.987
18.5-24.9	0	0	-	-	2.78		0.096
25-29.9	5	20.00%	0.60	0.20-1.82	0.82		0.364
30-34.9	16	64.00%	3.89	1.48-10.23	8.07		0.004
35-39.9	2	8.00%	0.41	0.08-1.96	1.33		0.249
>40	2	8.00%	0.76	0.14-3.92	0.11		0.740
Three	>18.5	0	0	-	-	0.37	0.542
18.5-24.9	0	0	-	-	0.71		0.399
25-29.9	3	37.50%	0.70	0.23-1.82	0.86		0.964
30-34.9	1	12.50%	0.19	0.02-1.62	2.79		0.094
35-39.9	4	50.00%	7.50	1.61-34.81	8.35		0.0038
>40	0	0	-	-	0.93		0.333

Four	>18.5	0	0	-	-	0.07	0.792
18.5–24.9	0	0	-	-	-	0.52	0.470
25–29.9	0	0	-	-	-	2.36	0.125
30–34.9	2	33.33%	0.73	0.13–4.20	0.13	0.722	
35–39.9	0	0	-	-	1.14	0.286	
>40	4	66.67%	32.80	4.79–224.31	23.83	0.000001	

BMI: Body Mass Index; %: percentage; >: Higher than; <: Lower than; n: Number; χ^2 : Chi-squared; p: Level of significance; OR: Odds ratio; CI: Confidence interval

FIGURE LEGENDS

Prevalence of dermatologic alterations

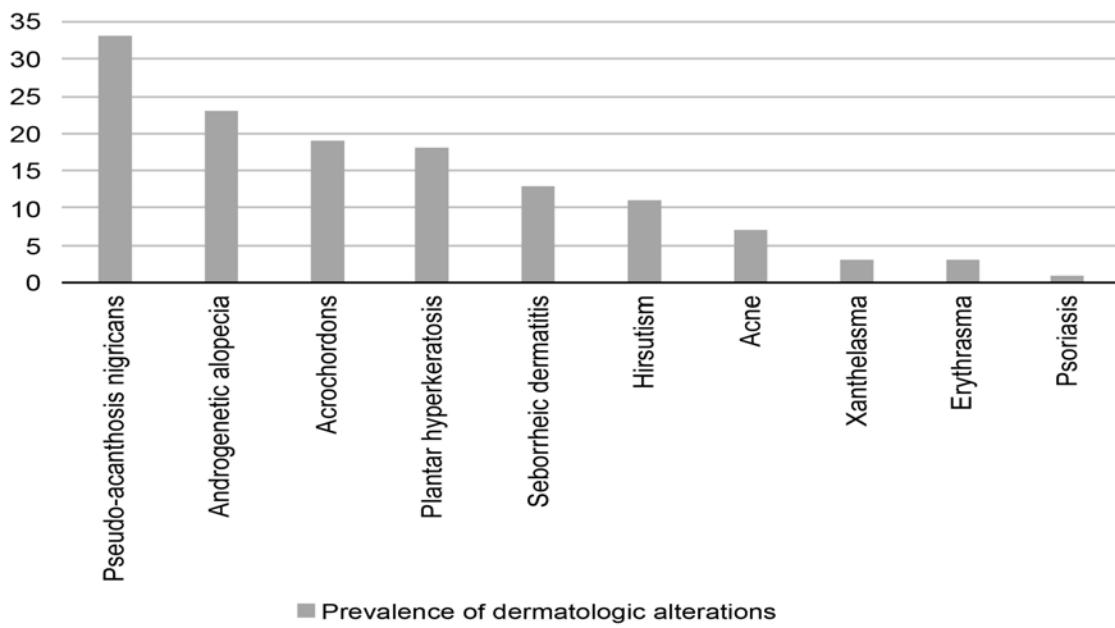


Figure 1: Prevalence of dermatological alterations in the study group with metabolic syndrome in patients treated at the Basic Health Units of Gurupi-TO, Brazil (2022)

Number of skin manifestations per patient

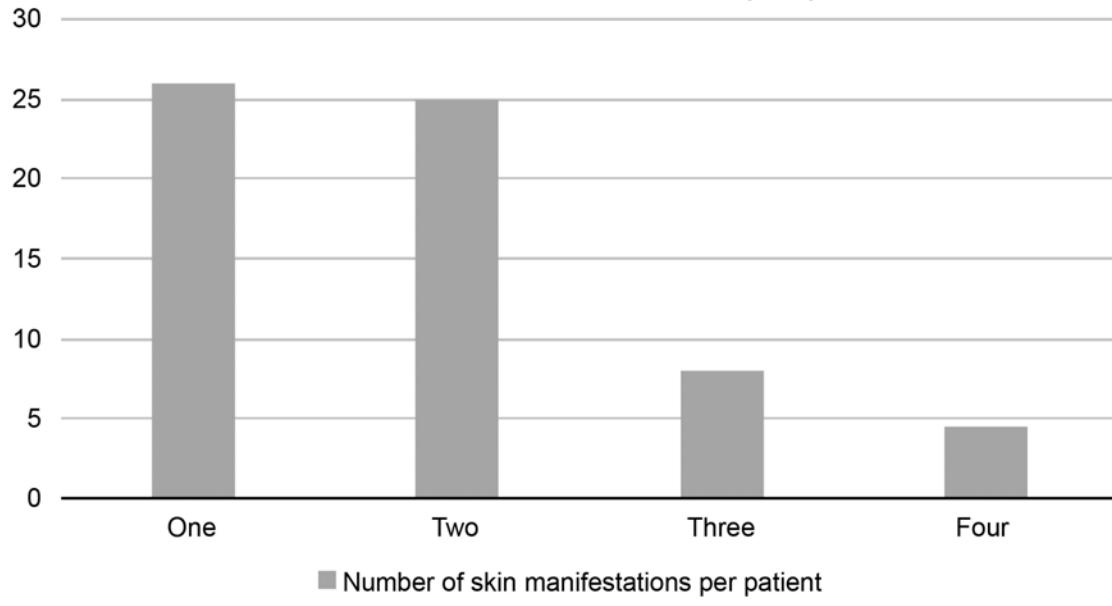


Figure 2: Number of skin manifestations per patient in the MS Study Group in patients treated at the Basic Health Units of Gurupi-TO, Brazil (2022)



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Latin American Region Facing the Brain Drain

By Ivonne Bonilla

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Abstract- Latin America is a sending region of talents, or brain drain, which can be reverted if governments apply some policies to make these talents return such as the network formation and the emergence of virtual scientific communities which can open new opportunities for the strengthening of scientific communities in the sending countries and the possibilities of an academic career. This research analyzes the phenomenon of brain drain in Latin America through the Migration Systems and Networks theory or Social Network theory and presents a case study which consists in the analysis made of the data obtained from a survey done to Latin American high skilled people living in different countries than their countries of origin. The professionals surveyed and the author do some recommendations to may revert this phenomenon in the region.

Keywords: *Latin America, brain drain, talents, social network, case study, developing country, developed country.*

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LATINAMERICANREGIONFACINGTHEBRAINDRAIN

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Abstract- Latin America is a sending region of talents, or brain drain, which can be reverted if governments apply some policies to make these talents return such as the network formation and the emergence of virtual scientific communities which can open new opportunities for the strengthening of scientific communities in the sending countries and the possibilities of an academic career. This research analyzes the phenomenon of brain drain in Latin America through the Migration Systems and Networks theory or Social Network theory and presents a case study which consists in the analysis made of the data obtained from a survey done to Latin American high skilled people living in different countries than their countries of origin. The professionals surveyed and the author do some recommendations to may revert this phenomenon in the region.

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I. INTRODUCTION

The intense global demand for talent has contributed to increase migration of specialized human resources, in response to new opportunities, incentives and resources. The most developed economies, extensive users of science and technology, operate like huge magnets that attract large flows of specialists capable of generating ideas or products and applying knowledge in complex production and innovation processes.

It is estimated, for example, that in OECD countries (Organization for Economic Co-operation and Development), where it occurs about 70% of world trade in goods and services, the number of immigrants with at least 13 years of schooling increased in the past decade from 12 to 20 million people, mostly from developing countries, who moved in search of higher wages and better job opportunities or professional development (Didou & Gérard, 2009).

Indeed, unlike the term "mobility", which has benefited over the years of evaluative neutrality, the "brain drain" favored, from the first moment when intense ideological debates were enunciated in the sixties, especially addressed to the strategies of the national governments, in the sense of developing public policies to promote science, technology and innovation

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and, equally, growth and competitiveness. Thus, if emigration is, in general, a phenomenon that implies political interest at first hand, the emigration of qualified professionals attracts renewed interest. This is because the departure of these professionals may signal the incapacity of national political systems, or the domination of other countries that exercise great attractiveness over young people (with or without higher education) with high goals of professional self-realization.

The magnitude and importance of Latin American skilled emigration in international flows, according to data from the United States - the main destination - were increasing in the numbers of skilled emigrants and a decrease in their relative participation in the set of flows.

a) Research Questions

- How are the Latin American countries facing the brain drain?
- What has been the incidence of the brain drain in the region?

b) Hypothesis

Latin America does not have the necessary conditions to house and employ high-skill workers according to their professional training and that is why they decide to emigrate to more developed countries to search an accurate scientific network where the professional is able to produce more.

II. RESEARCH METHODOLOGY

The research methodology is mixed. For one side there is the theoretical part which will give the analysis based on the Migration Systems and Networks theory or Social Network theory and the empirical part which consists in the analysis of the answers obtained from a survey done to people who are considered as brain drain of Latin American countries.

a) Migration Systems and Networks Theory or Social Networks Theory

The theory of social networks, of which origins date back to 1930 and 1940, has received, until its current configuration, various influences basically coming from anthropology, psychology, sociology and mathematics. It is a good example to highlight that the theory, conceptual apparatus, methods and techniques can be mutually linked. This theory provides an innovative perspective: the relational one, which focuses its analysis in the relations of the units that act as theory,

models, methods and applications are expressible in relational terms. In this sense, the individual is not the unit of analysis but the set formed by individuals and the ties between them, as Henao (2012) points out.

¿What is a social network? Social networks can be defined as a well-defined set of actors-individuals, groups, organizations, communities, global societies, etc. such as universities, diaspora organizations, government and nongovernmental organizations, private employment agencies, corporations, religious and cultural organizations, and so on, linked ones with others through a relationship or set of social relationships, according to Henao (2012) and Poros (2011).

To complement the definition of social network, it is noteworthy to mention some fundamental concepts to understand and analyze the phenomenon of social networks: social actor, relational ties, dyad, triad, subgroup and group. Conceptualizing each one, first, social actors are social entities subject to social network links. They can be individuals, companies, collective social units, departments in a company, public service agencies in the city, states, etc. Relational ties are the links between pairs of actors, a unit of analysis in social networks. They are of various types such as personal-friendship, transfers of resources, goods, money, information, etc.; associations, mental behavioral interactions; geographic or social mobility; physical connections; formal relationships or organizations; etc. The dyads and triads refer to the possible link between two or three actors, respectively. The subgroup can be defined as any subset in addition to the ties between them. Finally, social networks have the ability to model relationships among systems of actors that are named groups as a set of actors on which ties are measured, as Henao argues.

Moreover, the central idea of social networks is based on the fact that people think, feel and do. These originate and are expressed in the patterns of situational relationships that occur between the actors, thus opposing to the idea that the characteristics of the individual actors are at the base or are the cause of the behavior patterns, therefore of the social structure. In this measure, what matters most in network theory are the links that exist between the different actors in the various situations in which they are observed. In other words, the social actors and their actions are seen as interdependent and not as autonomous units, and the relational ties between the actors may indicate transfers of resources, both material and non-material. Furthermore, network theory models view relationship structures as environments that either provide opportunities or restrict individual action. Similarly, network models identify the social, economic, political structure, etc. as constant patterns of relationships among actors, as Henao claims.

According to Poros (2011) the most distinguishing characteristic of migrant networks is that they can be in two or more nations, but they also lean to be fairly restricted and precise in terms of the bonds that comprise them. Besides, such linkages bond possible migrants in home countries with others in destination countries, or attempt to link highly skilled migrants with institutions or organizations in the nation or receiving nation that are regarding to recruit them.

Therefore, if this theory is applied to the migration of talents issue, this is a network decision model, where the nodes or vertices represent people with a high level of education who are researching in their field of knowledge, and the links reflect the academic, scientific or investigative productions that they carry out with their peers, in order to achieve greater development or a greater quantity of investigative products. The researcher who wishes to emigrate takes into account for making the decision the following criteria: the average degree of the network, since the productivity of scientists depends on the degree of scientific collaboration they develop; the utility generated by the different types of links; the effect that neighbors have on individual productivity; the assessments of the different locations and the technology available for scientists. In the model, the researcher who wishes to emigrate makes the decision to have scientists from the same local network as neighbors or to have as neighbors the scientists from the developed country, once the neighborhood substitution process has been carried out, the neighbors s/he chooses generate positive and complementary effects on their productivity, as Del Rio (2009) states.

Scientists who decide to emigrate do so because they are seeking to increase their productivity. As the productivity of each researcher depends on the scientific collaboration that they can develop with their peers, scientists will choose those places where there is a greater probability of raising the degree of each one, that is, the measure of the network, approximated by its average degree, will be the variable that the researcher will use to decide in which network it is located. Those networks with a higher average degree represent networks with greater scientific collaboration. Scientific collaboration generates increasing returns, which in the model will be named the agglomeration function; this depicts the positive effects that researcher's productivity has to account other scientists to strengthen their work. In addition to scientific collaboration, the productivity of researchers depends on the infrastructure, technological resources and investment capital available to them. In developed economies, the agglomeration function and technological infrastructure are greater, if there is a greater agglomeration of scientists this requires a greater technological infrastructure, generally these two arguments have a positive relationship in their behavior,

the model proposed below works with these two arguments, according to Del Río.

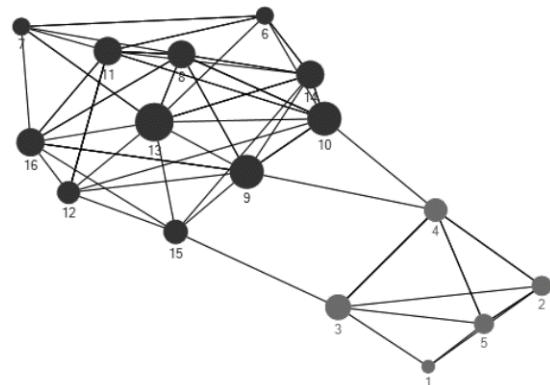
When researchers from the developing country move to the developed country, their geographic network change may be temporary or permanent. If the figure of links developed by the researcher is greater than the average degree of the scientific collaboration network, her/his drain will be permanent, while if the number of links between the scientist with the network of the developed country is less than the average degree of the network, the outflow will be transitory, as soon as the research process that led her/him to leave the country will return, since there is a greater affinity with the scientists located in the country of origin, with them he carries out most of his scientific work.

The brain drain, as Del Río and Henao point out, occurs because the search for greater scientific collaboration often requires geographical connection, since the research work carried out together must be supported by logistical components such as technology and capital available for the research, which are located in certain places in developed countries. This reveals that there are spaces determined by unequal exchanges between hegemonic and non-hegemonic centers of knowledge production. The professionals who most tend to emigrate are those who work in cutting-edge research in high technology or areas whose development is just incipient in their country of origin, such as electronic or biomedical engineering, biomedicine, neurology, or applied mathematics. These actors are forced to change their geographic network, if they want to leverage of all the benefits provided by the scientific collaboration of developed countries.

Furthermore, schools and universities are a principal reference of high educated migrant networks, particularly among individuals who have accomplished degrees abroad. According to Vertovec (2002), the experience of studying out of the home country, meaningfully rises the probability of being a skilled migrant in the host country. The links that migrant students create can also aid consequently to provide opportunities for them.

According to Del Río, geographic location acts as a barrier to global scientific collaboration. Although paths with short geodetic distances can be formed between researchers from developing countries and researchers from developed countries, highly trained professionals decide to emigrate to economies with a significant level of research and scientific collaboration.

The latter can be explained since the geographic networks of developed countries have greater scientific collaboration among themselves, due to there are favorable factors for this, such as technological infrastructure and a number of scientists in the same geographical area (Henao, 2012).



Source: Henao, D. (2012).

Fig. 1: "La teoría de redes: aspectos claves para el análisis de la "fuga de cerebros".

The figure 1 shows the connectivity of two geographic networks of scientific collaboration. To the extent the nodes and their connections are presented, both networks reveal the bridges that allow interconnection: (4-10), (4-9) and (3-15) and the points from which it can occur emigration processes. The black nodes represent the developed country network, and the gray nodes (1, 2, 3, 4 and 5) are those of the developing country network. Likewise, the presented interconnection among the nodes in the gray network (developing country) is weaker than the black network (developed country), since it shows less interconnection than the developed network, therefore it confirms that the researcher from the developing nation needs to move to the developed one in order to be completely benefited.

b) Empirical Methodology: Case Study

The Case Study in Qualitative Research is an inquiry process focused on the description and detailed, comprehensive, systematic, in-depth examination of a defined case, of a particular fact, phenomenon, event or situation. The analysis incorporates the context (temporal-spatial, economic, political, legal), which allows a greater understanding of its complexity and, therefore, the greater learning of the particular case (Duran, 2012).

According to Duran, the Case Study can be used in four different situations: a) when the axis of the study revolves around answers to "how" and "why"; b) when the conduct involved in the study cannot be manipulated; c) when it is considered necessary to analyze contextual conditions because are relevant to the phenomenon under study; or d) when there is no clear delineation between the phenomenon and the context.

The case study is a phenomenon of some kind that occurred in a limited context. It can be a person, couple, object, system, a particular event or a historical





event, community, organization department, a program; the only requirement is that it must have some physical, social or temporal limit that confers identity on it, as Duran argues.

III. QUALIFIED MIGRANTS FROM LATIN AMERICA

According to Luchilo (2018), undoubtedly, some conditions in the evolution of Latin American countries facilitated convergence with US demand. Starting in the 1950s, with different rhythms, Latin American countries experienced modernization processes, which included government initiatives to promote scientific activities and improve the quality of their universities. Likewise, the bottlenecks that substitute industrialization faced in the relatively more developed countries of the region, led to the creation of different institutions aimed at improving the productivity of the agricultural and industrial sectors and creating capacities in areas considered strategic, such as nuclear energy. Simultaneously, there were changes in the social structure and cultural habits, especially in urban sectors, one of which salient manifestations was the expansion of university education.

For instance, research skilled migration from Argentina focused on engineers. Based on the survey of the admissions records of the US Immigration and Naturalization Service, a series with the income of Argentinean professionals and technicians admitted as immigrants to the United States between 1950 and 1966 was drawn up. During that period, 6,545 people entered in that condition, among them 1,131 engineers, 1,180 doctors and 1,323 teachers and professors, as Luchilo states.

Colombia was another Latin American country that experienced significant emigration, both in absolute terms and in relation to its pool of qualified personnel. Unlike Argentina –which in the 1970s, 1980s and 1990s decreased its emigrant flows with respect to the one of 1960–, the growth of Colombian emigration from the 1960s was the beginning of a tendency to the expansion of flows to the United States. In the case of professionals, the estimates are 6,470 professionals and technicians for the period 1961-1970. The scholars also estimated the percentage of skilled emigrants who entered the United States between 1961 and 1966 in relation to the total number of university graduates in Colombia in the same period at about 17%, with a peak of 23% in health sciences, as Luchilo claims.

Furthermore, according to an estimation of Ermólieva (2010) about the minimum cost of a university education for a student at the graduate level (4 years) in the region is 25 thousand dollars, the professional migrations of the last four decades have cost of more than 30,000 million dollars for the Latin American and Caribbean countries, then the exodus of the 24

thousand Latin American professionals registered in 2006 represented a loss of one billion dollars for the region since their training, including postgraduate courses, ranges from 40 thousand to 80 thousand dollars according to the undergraduate and the country of origin.

As Luchilo (2018) and Espinoza (2013) argue, regarding the magnitude of qualified migrations, the estimates vary depending on whether the years of schooling - more than 13 years - or the highest level of education attained - complete superior - are taken into account. According to estimates, the Latin Americans with more than 13 years of schooling residing in OECD countries by 2007 numbered around 4.9 million, which represented just under 20% of the total number of qualified migrants in OECD countries. The growth in the proportion of Latin American skilled migrants far exceeded the average for the same period: while skilled migrants in OECD countries increased by 111%, the ones from Latin American countries did so by 155% between 1990 and 2007 (Guevara, 2019). Unlike other regions in which flows are more diversified, those of qualified Latin Americans have a very strong orientation towards the United States, which receives more than 88% nationals from this region with more than 13 years of schooling.

Furthermore, countries like Mexico represents about 28% of all skilled migrants and is the country of which number of skilled migrants grew the most between 1990 and 2007. The Caribbean countries represent the most important regional subset, with around a third of skilled migrants. Within this group, Cuba is the nation with the highest number of qualified migrants, followed by Jamaica, Haiti and the Dominican Republic, as Luchilo claims.

According to information from the UNAM Economic Research Institute (Mexico), around 5,000 scientists leave the country searching of better job opportunities. The head of this office added that currently about 200,000 Mexican researchers work in countries such as Canada, France, Argentina, Chile and Spain. Just in the US there are no less than 550,000 Mexicans who have bachelor's, master's or doctorate's studies. Likewise, it must be taken into account that for each year of undergraduate studies that each of these Mexicans carried out, their country of origin (Mexico) invested around USD2, 270, and the 11.5 thousand Mexicans residing in the United States with a doctorate degree are approximately equivalent to the Mexican production of such highly qualified personnel during the last 6 years, as Ermólieva (2010) and Espinoza (2013) argue.

Within the sub-region of the Andean countries, Peru and, above all, Venezuela experienced higher than average growth. In the countries of the Southern Cone, the most prominent phenomenon is the growth in the number of Brazilian skilled migrants –Brazil has the

second growth rate during the period, after Mexico—, but the number of skilled migrants is very small in all countries compared with the pool of qualified people in Brazil, as Luchilo argues.

Professionals in science and engineering represent around 16% of all Latin Americans with university studies residing in the United States, in this case, the differences between the countries of the region are not so important. While for Mexico the proportion of professionals in science and engineering over the total number of professionals was 14.8%, for Venezuela it was 21% and for Argentina it was 22%, as Luchilo affirms.

Moreover, in 2005, a study made by the National science foundation (USA) registered 53,000 Argentines, 36,000 Colombians, 33,000 Peruvians, and 20,000 Brazilians among immigrants who made up the US science and technology system. South America as a whole provided nearly 180,000 scientists and engineers. The Caribbean did the same with 170 thousand people, the majority from Cuba, Jamaica and the Dominican Republic (Ermólieva, 2010).

On the other hand, according to Didou (2008), another possible way to address this asymmetric movement of scientists and professionals towards developed countries, it is the "brain exchange". It was about compensating losses due to emigration via the promotion of mobility and the exchange of highly qualified resources between countries of origin and developed countries. Hand in hand with changes in the conditions for the production of knowledge and after the revolution in information technology, in the 1990s, the design of policies that would achieve a "brain gain" through creation and strengthening of networks of scientists and professionals. These networks seek to act as links between local and global networks of scientific and technological development. This allows those who live in other countries to have the possibility of providing help and collaboration to their colleagues and scientific communities in their countries of origin through technical reports, consultancy or other forms of academic ties.

a) How Latin America is Facing the Brain Drain

At the same time of the changes in conditions of knowledge production and after the revolution in computer technologies, in the 1990s began to explore the design of policies to achieve a "brain gain" through creation and strengthening of networks of scientists and professionals. These networks seek to act as links between networks local and global scientific development and technological. The network allows those who have established in other countries to have the possibility to help and collaborate with colleagues and scientific communities based in their countries of origin from technical reports, consulting or other forms of academic bond, as Garcia (2008) explains.

One way to generate gain is to try to introduce new units of account in the profit and loss balance of qualified personnel. In other words, the negative balance in the qualified emigration account can be offset by a positive balance in the "remittances" or "knowledge transfer" account. From this perspective, emigrants - often grouped under the name of "diaspora" - can become a factor in the development of their countries of origin. In this field, the "diaspora option" has been very successful, especially in international organizations (Luchilo, 2018).

On the other side, in recent years, several countries in the region have tried policies to promote return and link with qualified emigrants, aimed above all at researchers and, to a lesser extent, at entrepreneurs. Some of these policies - such as the RAICES program of the Argentinian Ministry of Science and Technology which emphasizes the return or, rather, the repatriation of scientists. Along the same lines, an interesting project is the Return Plan, launched by the Ecuadorian government to recruit teachers among Ecuadorians living abroad. Others, on the other hand, are inscribed in the diaspora option, and focus mainly on the promotion of linkages. It is interesting to note that these initiatives are not necessarily promoted by the countries of origin. The launch in 2001 of the International Diaspora Engagement Alliance was an initiative of the US State Department, in which companies and other organizations converged - including the Inter-American Development Bank -. Multilateral credit organizations, and also those of the United Nations system, are active supporters of this second approach, as evidenced in a large series of publications, projects and international meetings, as Luchilo states.

b) Incidence of the Brain Drain in the Region

According to Espinoza (2013), it has been accounted that approximately 180 million people, 3.5% of the world's population, are inhabiting in different nations than the ones they were born. Expats are generally high-skilled: from whom 67% are in the United States and 88% in OECD nations have a secondary or higher education. They are usually better lettered than the rest of the inhabitants in their nations of origin. Usually less educated migration generates lots of gains for expats, families, and home nations. Conversely, well-educated emigration is generally attributed for divesting developing nations of human capital, this hampers economic development. On one hand, the economic approach proposes that brain drain provides high skilled human resources as it places well-educated to their best use; and on the other hand there is the approach that brain drain hinders to a nation's economic, social, and professional development. However, according to the author, the consequences of the brain drain are now becoming a concern for developed nations where labors



are feeling endangered by a huge amount of well-educated force arriving to their nations.

Well-educated exodus benefits the migrants themselves, the network of scientist or professionals, and in general, the economy. Ran accurately it may also benefit many developing nations. Approximately 37% of the legal migration living in OECD nations correspond to the well-educated one. According to IMF and World Bank studies have found a strong connection between education and legal migration, it does not consequently affect home nations adversely: expectations of exodus encourage the aspiration for more education, mainly when the recompenses are higher than prospects in source countries. This at the same time, can also direct to larger investment in education and skills. This migration may also foster cognizance go through from receiving to home nations, as Espinoza points out.

In receiving nations, family organizations and investments from migrants have arisen towards sending nations that has generated a solid community sentiment around a nationality and professions in common. This may rouse trade and encourage exports in home nations as expats regularly keep predilection for those goods they raised with and are expected to import items they know. Likewise, migrants may give rise to positive impact on productivity and technology transfer, as Espinoza explains.

On the other hand, with the migration of engineers, doctors, scientists and others, the brain drain

According to the answers given by the professionals, the following analysis was made:

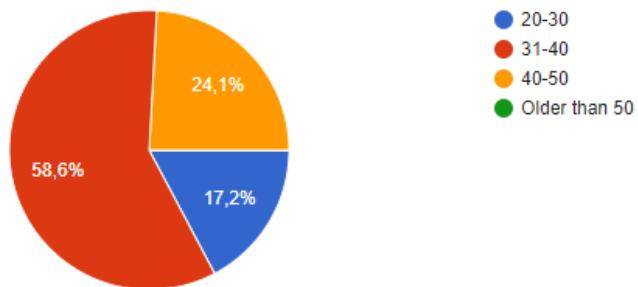


Fig. 2: Age Range. Almost of the 60% of the Surveyed are in the Age Range of 31-40, no one is older than 50 and 17% of them belong to the Age Range of 20-30.

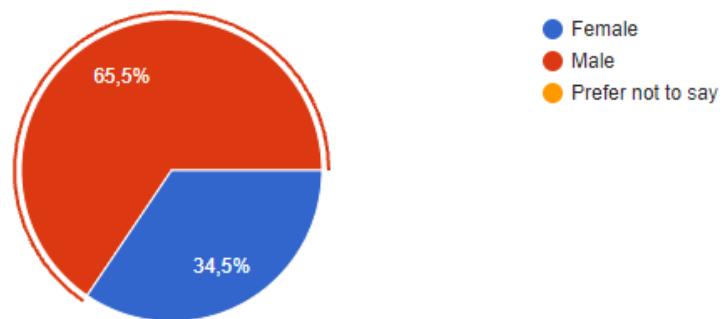


Fig. 3: Gender. Most of the Professionals Surveyed are Male, 65.5%. 34.5% of them are Female.

not only contributes to the technological and scientific backwardness of a nation, but also suffers from a process of human decapitalization, which, at the same time, economic growth slows in short and long term.

Hence, this situation benefits to the developed countries keep growing technologically, scientifically and economically and become more appealing to experts. For instance, according to World Bank data, in the period of time between 1976 and 1996, the share of international trade corresponding to the cutting-edge technology items folded, was from 11% to 22% (Guevara, 2019).

IV. CASE STUDY: LATIN AMERICAN PROFESSIONALS DECIDE TO EMIGRATE TO MORE DEVELOPED COUNTRIES TO SEARCH AN ACCURATE SCIENTIFIC OR PROFESSIONAL NETWORK WHERE THEY ARE ABLE TO PRODUCE MORE

A questionnaire (appendix 1) was made and shared with 29 Latin American professionals who answered all the questions. Their nationalities are: 1 Argentinian, 1 is from Belize, 1 Brazilian, 1 Chilean, 7 Colombians, 1 is from Ecuador, 4 are from El Salvador, 3 Guatemalans, 3 are from Honduras, 3 Mexicans, 2 are from Nicaragua, 1 Paraguayan and 1 Peruvian.



Fig. 4: Nationality. 24% of the Professionals Surveyed are Colombians, the following are Salvadorans (17%) and from 6 Latin American countries 3% of the Professionals were Surveyed.

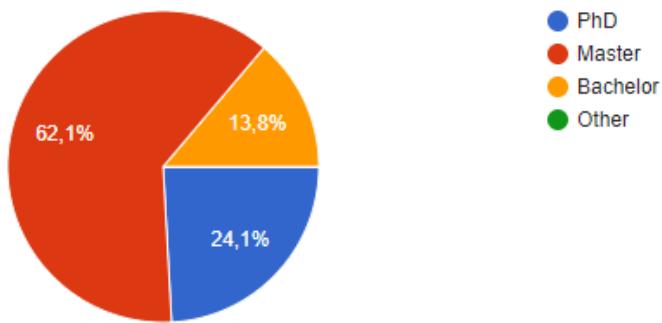


Fig. 5: Highest level of education completed. Most of them have a master as the highest level of education, 62%. The second highest level of education is PhD, corresponding to 24% of the professionals surveyed.

Table 1: Professionals per Nationality, Highest Degree Completed, Country they Studied and they Live. Any of the 29 Professionals Surveyed live in their Country of Origin. All of them, Studied their Highest-Level Degree (Bachelor, Master o Doctorate) in other Country Different than theirs, 14 of them (48%) Moved to other Country Different than the one they Studied. 52%, Live in the Same Country they Studied.

No°	Nationality	Highest Degree Completed	Country they Studied	Country they Live
1	Nicaraguan	Master	Taiwan	United States
2	Nicaraguan	Phd	Taiwan	Taiwan
3	Salvadoran	Phd	France	United States
4	Salvadoran	Bachelor	Taiwan	South Korea
5	Salvadoran	Master	Taiwan	Taiwan
6	Salvadoran	Master	Taiwan	Taiwan
7	Belizean	Master	Taiwan	Taiwan
8	Peruvian	Master	Taiwan	Taiwan
9	Paraguayan	Master	South Korea	Saudi Arabia
10	Mexican	Master	South Korea	South Korea
11	Mexican	Master	South Korea	Spain
12	Mexican	Master	South Korea	Germany
13		Master	Spain	
14	Brazilian	Phd	Japan	Japan
15	Argentinian	Phd	Taiwan	United States
16	Chilean	Master	South Korea	South Korea
	Honduran	Bachelor	Taiwan	France

17	Honduran	Master	Taiwan	Taiwan
18	Honduran	Master	Taiwan	Germany
19	Guatemalan	Master	South Korea	Mexico
20	Guatemalan	Master	South Korea	Mexico
21	Guatemalan	Master	South Korea	South Korea
22	Colombian	Master	South Korea	Italy
23	Colombian	Bachelor	Austria	Austria
24	Colombian	Master	Turkey	Turkey
25	Colombian	Master	France	France
26	Colombian	Phd	United States	United States
27	Colombian	Phd	Puerto Rico	Mexico
28	Colombian	Bachelor	United States	China
29	Ecuadorian	Phd	United States	United States

■ Yes ■ No

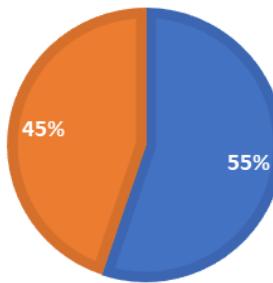


Fig. 6: Associated with a Network of Scientists or Professionals (it can be the Place where they Work). More than the half of the Professionals Surveyed, 55%, are Associated or Work with a Network of Scientist or Professionals.

Table 2: General Functions in the Network According the Nationality and Highest Degree Completed. As the Table Above Shows, Only one of the Professionals Associated to a Network of Scientist or Professionals his Highest Level is a Bachelor Degree, 15 are Postgraduates (11 Master/4 Doctorate) and the Networks of 11 of them, have more than 21 Members.

Nº	Country	Highest degree completed	General functions in the network	Nº scientist or professionals
1	Nicaraguan	Master	Nonprofit organization coordinator	21 or more
2	Salvadoran	Doctorate	Network of Central American scientists ("Red de Investigadores de Ciencias Naturales de América Central"), and currently exploring it, trying to see how I can contribute.	21 or more
3	Salvadoran	Master	Senior Technical Support Engineer	21 or more
4	Argentinian	Doctorate	I work at a major financial institution and I teach at different universities.	21 or more
5	Salvadoran	Master	New Product Introduction for Automotive Industry	21 or more
6	Mexican	Master	I am part of Mexican professionals group in Korea	21 or more
7	Chilean	Master	Phd research	N/A
8	Guatemalan	Master	Networking (job connections, adapt to life in foreign country counseling)	N/A
9	Colombian	Master	Phd research	N/A
10	Colombian	Bachelor	N/A	N/A
11	Colombian	Master	A study about the acceptability of Technologies (genome editing) in animal Breeding .	21 or more
12	Colombian	Doctorate	Tec de Monterrey	21 or more
13	Guatemalan	Master	R&D of shock absorber components for the automotive industry	N/A
14	Honduran	Master	Support as professionals in the insurance industry	21 or more
15	Ecuadorian	Doctorate	Research	21 or more
16	Guatemalan	Master	General Manager	21 or more

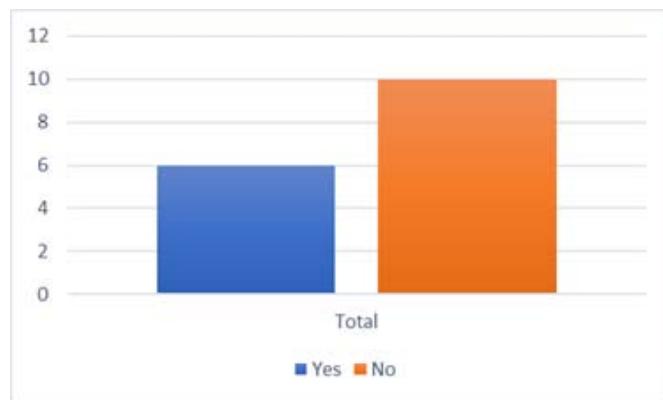


Fig. 7: Question: *Is your country a part of this network where you are a member of?* Among the 16 professionals who are members of a network, only 6 of them answered that their country of origin is a part of their network.

Table 3: Question: *In which way does the network include your country?* Answers can be more than one. The Nationalities of the Professionals who are Member of a Network of Scientists or Professionals that Includes their Country of Origin are: One Argentinian, One Mexican, Two Colombians, One Ecuadorian and One Guatemalan, which are Representations of all the Sub-Regions of the American Continent: North, Central and South. Three of them Answer that the Company/Institution where they Work has a Branch in their Country of Origin. Two of them are doing a Project that Benefits their Home Country. Two of them are doing a Research Related to their Country of Origin.

Noº	Country of Origin	Highest Degree Completed	Way your Country is Included in the Network
1	Argentinian	Doctorate	The company/institution where you work has a branch in your country /You are doing a research related to your country
2	Mexican	Master	You are doing a project that benefits your country
3	Colombian	Bachelor	The company/institution where you work has a branch in your country
4	Colombian	Doctorate	You are doing a research related to your country
5	Ecuadorian	Doctorate	You are doing a project that benefits your country/ You are doing a research related to your country
6	Guatemalan	Master	The company/institution where you work has a branch in your country.

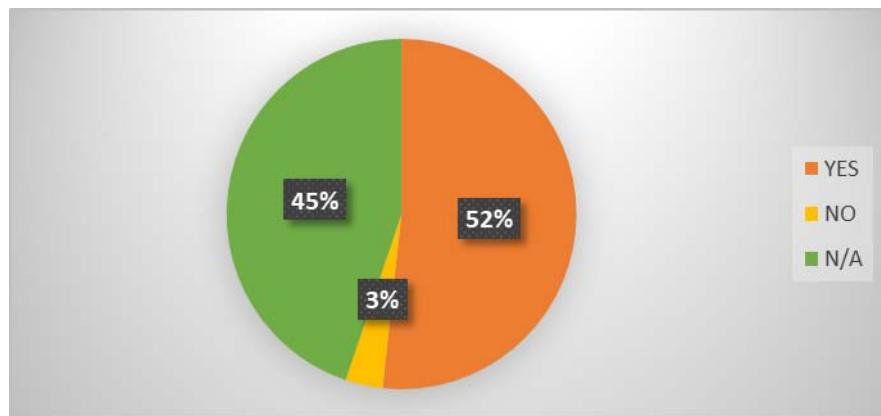


Fig. 8: Question: *If Your Home Country Had The Exact Same Network Opportunities As You Have In The Country Where You Live Currently, Would You Still Stay In Your Host Country? If This Question Does Not Apply To Your Case, Choose N/A.* Most Of The Half Of Professionals Surveyed, 52%, Answered That Even If They Have The Exact Network Opportunity As They Have In Their Host Country, They Would Not Go Back To Their Home Country. Only The 3% Answered That They Would Go Back To Their Country Of Origin.

Table 4: Question: *Why would you Stay in your Host Country?* Continuing with the Previous Question, 15 Professionals of a Group of 16 who Answered that Even if They would have the Same Network Opportunities in their Country of Origin, They Prefer to Stay in their Host Country, 4 of them Said that because they have Family in the Host Country and there is a Better Quality of Life there. In General, what their Answers have in Common is that the Host Country Brings them a Better Quality of Life and Better Opportunities. One of them Expressed that her Country of Origin doesn't have the Accurate Political and Social Conditions to Live.

Answers	No.
Home country doesn't have accurate political and social conditions to live	1
Host country has better conditions and capacity than country of origin	3
Has a family in the host country	3
It is very unlikely that the opportunities would be exactly the same.	1
Has a family in the host country, and in the host country has a better quality of life	4
Better opportunities	1
I will be interested in developing and study something that is quite new in agricultural studies.	1
Host country has better universities than in Latin America	1

Table 5: Question: *¿What can you Recommend to the Government of your Country to Improve its Capacity to Leverage of its High-Skilled Workers Abroad Like you?* All these Recommendations Written by the Professionals Show not only their Discontent Regarding to the Acting of the Government of their Countries, but also their Desire to be Listened to what they Consider Necessary to be Changed in their Countries in Order to Leverage their Local high Qualified human Resource.

All the answers provided by the professionals were included in this chart. Of the 29 respondents, only two people did not answer this question: one from Belize and one from El Salvador.

2 People from Nicaragua: a) Invest in education (create education curriculums with standards that are closer to the ones in the region or in the continent, so that Nicaraguans can have more access to higher education)
 b) Allow citizens to work for the government and feel free to share ideas and projects that will benefit everyone (currently, only citizens affiliated to the political party of the government are able to occupy certain job positions regardless of the level of education)
 c) Allow police and military to be autonomous entities that work in benefit of the Nicaraguan people
 d) Invest in internal security of the country, to fight burglary, violence against women, child and women trafficking, drug trafficking and others.
 e) Invest in medicine and create programs that can facilitate access to medical care to those who live in the country area.
 f) Design and implement agricultural programs to help the small farmers
 g) Invest in clean energy and projects to help the environment
 h) Invest in special education, access to transportation, medical care and programs that will allow the special needs community to have access to a dignified life
 i) Search high skilled professionals

3 People from El Salvador: a) A first step is networking: if all Salvadoran scientists abroad could partner together, we would create enough momentum to draft solid scientific proposals for the country. That's why the current network I'm partnering with seems a good starting point for me.

b) Incentives for research: money should be invested for young talented investigators to come home and do their research there.

(c) Creating a culture where the scientific profession is respected. If the government dismisses expert scientific opinion for mere political reasons, it removes incentives for young researchers to do their work in El Salvador. The government should trust on the scientific community. Data should speak by itself.

d) Improve security, persecute corruption and organized crime, create jobs, respect democracy and rule of law, attract foreign investment, improve education

e) Open to industries which are in a path to expansion in other countries to leverage language skills, overseas sales skills and technical studies.

1 from Peru: a) To govern well to create job opportunities.

1 from Paraguay: a) Freedom, less taxes, mostly for entrepreneurs who are starting.

b) Less bureaucracy for business.

3 people from Mexico: a) Better salaries and fight corruption

b) To offer more benefits and opportunities to continue with studies to grow professionally

c) To foster innovation, educate in knowledge work and IT sectors, e-commerce, advanced technologies.

1 from Brazil: a) My country needs to invest more in science and research to attract the high-skilled workers back to the country.

1 from Argentina: a) The government of my country (regardless of whatever party happens to be in power) does not seem to be interested in retaining high-skilled workers. Thus, I would not make any recommendations to it.

1 from Chile: a) I applied for the Chilean government scholarship for graduate studies. I didn't get it. But I got first a Korean Studies scholarship from UCLA and then the KGSP program. It seems to me that foreign institutions valued me more.

b) I also think Chilean government is too focused in Europe and the US when it comes to define what fields of study are "useful" or "practical". Just because you are applying from an Asian country, it is already harder to get support. This is a big strategic mistake, in my opinion.

3 People from Honduras: a) Provide more opportunities to travel and study abroad.

b) Not to be dishonest with money or power, and to have a vision to understand what problems are really facing the country's people.

c) To build an economy that can be trusted.

3 People from Guatemala: a) Ease to certify degrees, access to colleges (need to register as professional to be validated as a member of that profession to have access to job opportunities on public sector).

b) Work and invest in research and development facilities.

c) To create better conditions for big and foreign companies to establish in my country so that we could help to foster development with our work.

7 People from Colombia: a) Create a credible and sustainable policy to reverse the so called "brain drain". Offer competitive compensation packages to promote the return to home country and/or promote and increase exchange of knowledge between host and home country.

b) A responsible salary and giving better opportunities to study.

c) I would recommend the government to encourage university- industry cooperation and to focus on the third mission of universities

d) First, I recommend to the government to recognize the several challenges the country has on environmental and agricultural fields.

e) To make scientists to stay in the nation it can be interesting to show them the potential biodiversity of the country. The fact that they are not going to work on something already done, but that there's a lot of to do and that's a value for high-skilled workers. It is a challenge but is worth for.

f) Well paid jobs and real opportunities.

g) Research opportunities. Also improve the country's infrastructure

h) Safety

1 from Equator: a) Create spaces of collaboration. That is all we ask for!

V. RECOMMENDATIONS

Recommendations of the Final Declaration of the CRES (Regional Conference on Higher Education) regarding "Talent drain": to prevent and avoid the drain of talents carried out through the emigration of people with academic and professional qualifications, it is necessary to implement measures and public policies that generate incentives for qualified personnel to remain or return to their country of origin and integrate national development projects. Therefore, it is essential to create better working conditions and establish institutional alliances that allow the generation of favorable conditions for permanence and use of talents. Likewise, official agreements for training abroad must include dimensions such as reciprocity and service obligations in their country for graduates, as Didou and Gérard (2009), Ermólieva (2010) and Espinoza (2013) claim.

Likewise, it is required to increase and consolidate the academic association between

postgraduate programs, reinforcing training activities, encouraging the mutual recognition of credits and stimulating co-directorships and cooperative postgraduate courses, particularly in strategic areas. In addition, to promote the training of qualified human resources in the management of regional integration and international solidarity cooperation, seeking continuity and increasing the quality of the actions that are developed.

Moreover, the development of migrant networks can generate FDI and trade connections which aid to fortify the gains from trade and the diffusion of knowledge, which at last stimulus the development in the sending nation. Networks or diaspora externalities arise as a repercussion of a decrease in transaction and other information costs related to the commitment problem that is innate in agency relationships, according to Groizard and Llull (2007).

So that Latin American countries can reduce the costs and leverage of the potential benefits derived from mobility, it is necessary to develop - among other tasks -





multifaceted policies that go beyond the classic invoice programs aimed at preventing the definitive exodus of specialized personnel, encouraging their return and guaranteeing their reintegration to the country of origin.

To be successful in this task, it is essential to consolidate the framework institutional and human capital training programs. For this, it is necessary to enter into strategic alliances with the countries of the region and continue advancing, among other tasks, in the implementation of collaborative research and training projects, aimed at the mutual recognition of credits, the recognition of qualifications, the strengthening of the offer of postgraduate courses with double degrees, the design of short mobility stays and quality assurance.

Furthermore, it is recommended to establish lasting ties with the communities of professionals and talents abroad to promote networks and exchange schemes. Various home countries have benefited from their human capital based abroad.

Finally, it is worth highlighting and including the recommendations given by the professionals surveyed in this research since they represent a small group of the Latin American brain drain and they have expressed the reasons why they prefer to live abroad which most of them are related to better job opportunities.

VI. CONCLUSION

Network theory is an important element for the analysis of the "brain drain" phenomenon, since it allows demonstrating that scientific collaboration produces greater benefits and, therefore, promotes the transfer of researchers from developing countries to developed ones which have larger networks and greater scientific collaboration. In the same way, it offers the possibility of analyzing how scientific collaboration may be limited by geographical location, since the developed country has greater technology and greater investment capital, generating clusters of scientists that increase the production of those who are immersed in the network.

On the other hand, according to Ermólieva, the Latin American reality of first decade of the 2000s shows us that the "endemic" phenomenon for the Latin American countries, which is the exodus of their brains still not resolved despite governmental policies trying to contain it. Furthermore, it is evident that the process has a wavy character, with its ups and downs, determined by the cycles of economic development in the region and other parts of the world. In recent years the problem reappeared in the critical phase of the world economy when international competition for talent stiffened. This fact is due, for one side, to the chronic lack of human resources for science and technology by the most developed nations, which worsened due to the aging of the population and the decline in student enrollments in certain specialties, mainly non-humanitarian.

Even though some Latin American countries are doing some efforts to make return their talented human resource, it is still not enough, it remains to solve some structural issues of their governments and more unification in the ideas not for making them return but also to integrate them with fair wages.

ACKNOWLEDGEMENTS

I would like to express my gratitude to the 29 professionals who made it possible for me to complete and test my study, answering the questions in my survey with some hope of being read; and mainly to Dr. Andres Aguilera, who helped me willingly to share the survey among his Latin American colleagues.

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APENDIX I

Questionnaire

Case Study: Latin American professionals decide to emigrate to more developed countries to search an accurate scientific or professional network where they are able to produce more.

I'm talking about Latin American brain drain. Our Latin American talent people decide to emigrate to more developed countries to search an accurate network of professionals where they are able to produce more according to their studies done.

- 1- Complete name
- 2- Age range
 - 20-30
 - 31-40
 - Older than 50
- 3- Gender
 - Female
 - Male
 - Prefer not to say
- 4- ¿What is your nationality?
 1. Argentina
 2. Belize
 3. Bolivia
 4. Brazil
 5. Chile
 6. Colombia
 7. Costa Rica
 8. Cuba
 9. Dominican Republic
 10. Ecuador
 11. El Salvador
 12. French Guiana
 13. Guatemala
 14. Haiti
 15. Honduras
 16. Mexico
 17. Nicaragua
 18. Panama
 19. Paraguay
 20. Peru
 21. Uruguay
 22. Venezuela



5- ¿What is your highest level of education completed?

- PhD
- Master
- Bachelor
- Other

6- What is your last major studied?

7- In which country did you study your highest degree?

8- What is your current city where you live?

Country:

9- Are you associated with a network of scientists or professionals? It can be the company or institution where you work

- Yes
- No

10- If yes, what are you doing there? (If not write N/A)

11- Do you know how many scientist or professionals are members of this network? (If you don't know, choose N/A)

- 2-10
- 11-20
- 21 or more
- N/A

12- ¿Is your country a part of this network where you are a member of?

- Yes
- No

13- If yes, in which way does it include your country? Answers can be more then one (If in question 13 your answer was "no", choose N/A)

- The company/institution where you work has a branch in your country.
- The company/institution where you work has its headquarters in your country.
- You are doing a project that benefits your country
- You are doing a research related to your country
- Other
- N/A

If your answer was "other", please specify.

14- If your home country had the exact same network opportunities as you have in the country where you live currently (host country), would you still stay in your host country? If this question does not apply to your case, choose N/A

- Yes
- No
- N/A

If yes, why?

If not, why?

15- ¿What can you recommend to the government of your country to improve its capacity to leverage of its high-skilled workers abroad like you?



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Our primary aim was to introduce the newly created index for population-level monitoring of well-being among elementary pupils and highlight the methodology adopted.

Keywords: *wellbeing, child wellbeing, youth wellbeing, child wellbeing index, objective and subjective wellbeing, elementary schools, socioeconomic status, school climate, educational outcomes, standard of learning (SOL) scores, elementary school enrollment boundary.*

GJHSS-H Classification: *JEL Code: I12*



Strictly as per the compliance and regulations of:



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Wanderimam Tuktur ^a, Juwairiyah Brown ^a & Rexford Anson-Dwamena ^b

Abstract- Existing tools for assessing child wellbeing examined children more broadly as a group. However, the needs and outcomes of children are stage specific. Early childhood and elementary education in conjunction with early childhood neighborhood contexts exert larger effects on adult outcomes than neighborhood contexts in middle childhood and adolescence. The paucity of wellbeing indices for elementary schools in Virginia informed our creation of the Virginia Child Wellbeing Index (CWI) using elementary school attendance boundaries as the geographic level of measurement.

Our primary aim was to introduce the newly created index for population-level monitoring of well-being among elementary pupils and highlight the methodology adopted.

The secondary aims were 2-fold: 1) Test the predictive utility of CWI by examining the relationship between CWI and Standard of Learning (SOL) scores 2) Determine which of the CWI domains were the strongest predictors of SOL scores.

We created the CWI as a multidimensional tool to assess child wellbeing for all elementary schools in Virginia. The CWI consist of 10 domains, which include School Climate/Environment, Student Teacher Ratio, Socioeconomic, Mental Health Support, Clinical Support, Instructional Support, Teacher Quality, Per-Pupil Expenditure, School Safety Resources, and Percent English Learners.

We adopted a rigorous approach to measuring child wellbeing, with several methodological improvements to existing tools. Additionally, we tested the predictive power of the index by conducting a multivariate regression analysis, and elucidated domains of the index which predicted SOL scores most strongly.

Our results and maps showed variation of CWI across counties in the Commonwealth of Virginia. Nine of the ten CWI domains had a positive direct relationship with SOL scores. Socioeconomic and poor school climate domains were the two strongest predictors of SOL scores.

We concluded that inequities in child wellbeing across elementary school enrollment boundaries can be addressed with a focus on economic inequality, social and structural inequities, and other systems that shape the contexts in which children learn, play, and grow. Elementary schools in the lower quintiles of Virginia CWI should be the priority for targeted interventions.

Keywords: wellbeing, child wellbeing, youth wellbeing, child wellbeing index, objective and subjective wellbeing, elementary schools, socioeconomic status, school climate, educational outcomes, standard of learning (SOL) scores, elementary school enrollment boundary.

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I. BACKGROUND

There are numerous definitions of wellbeing, however, Robert Wood Johnson Foundation put forward a compelling definition, thus: "the comprehensive view of how individuals and communities experience and evaluate their lives, including their physical and mental health and having the skills and opportunities to construct meaningful futures" (Robert Wood Johnson Foundation, 2019, para.2). Public health leaders in the United States have placed greater emphasis on well-being as a key indicator of population health (Anderson et al., 2022a) because early childhood care and educational experiences, broader neighborhood educational contextual factors, and local institutions all play a role in shaping a child's educational opportunities that promote positive development, with lasting effects into adulthood (Noelke et al., 2020).

The United Nations Convention on the Rights of the Child (UNCRC) defines a child as "anyone under the age of 18" (United Nations, 2024). Bunting et al. (2022) defined youth as individuals within ages 11 and 19. However, the Youth Progress Index Report (2023) pointed out that no one clear definition of "youth" exists and our society's responsibility to educate, support, and engage youth does not end once they are 18. The challenges facing our youth tend to impact them well into adulthood.

Youth or child wellbeing is a topic that has been researched through many different lenses. According to Cho and Yu (2020), indices are "composites of different indicators or dimensions of children's lives that reveal their overall wellbeing, so that a comparison across time or place can be conducted" (p.3). Child wellbeing can be conceptualized into objective and subjective wellbeing. Objective wellbeing uses statistical indicators to measure external conditions of life such as material resources and living environment. Long and Huebner (2013) highlighted some examples of objective indicators of wellbeing, which include socioeconomic status and neighborhood characteristics. Conversely, subjective wellbeing encompasses the psychological and cognitive elements of an individual (Cho and Yu, 2020).





Additionally, the needs of children are not unidimensional but consist of a range of material and non-material resources across multiple dimensions such as race, economic inequality, housing affordability, family structure, parental social capital, diet quality, and physical activity (Cho and Yu, 2020). However, recent research provides evidence that the effect of neighborhood factors including early childhood educational experiences, depends on a child's age (Noelke et al., 2020). Hence, our study focus is Elementary schools in the United States, which extends from kindergarten (grade k) through 5th grade (ages 5-10).

Subsequent sections of the background highlight factors that influence child wellbeing, existing tools for measuring Virginia Child Wellbeing Index, validation of existing tools in the literature, geographical level of computing Virginia CWI, assessing the predictive utility of Virginia CWI, and justification for the study.

a) *Factors that Influence Child Wellbeing*

Numerous factors impact child wellbeing. First, poverty has a profound impact on youth, including poorer performance in school, increased exposure to crime, and increased likelihood of health problems (Reed, 2020). Families with lower income are not able to put their children in high-quality schools which is problematic because education has proven to be a good predictor of social mobility, employment, and income. In the U.S., public schools are primarily funded through local property taxes. More affluent neighborhoods contribute higher taxes to funding for school systems, and the reverse is true for lower-income neighborhoods. School districts with high levels of poverty spend 15.6% less per student compared to affluent districts (Reed, 2020). Mayer et al., (2000) also described the link between poverty and teacher quality, the authors highlighted that "High-poverty schools and high-minority schools have a disproportionately high share of inexperienced teachers relative to low-poverty and low-minority schools; and high-poverty schools have a disproportionately high share of academically weak teachers relative to low-poverty schools" (p. 14).

Economic status also has an impact on children's school performance. Data from the National Household Education Survey revealed that poor children in grades one through three are nearly three times more likely to repeat a grade (Ritter, 2015). Children from families in the bottom quintile of the income distribution are more than four times as likely as those from families in the top quintile to have dropped out of school in the past year (Ritter, 2015).

Secondly, in order to excel and succeed in later years of education, children need to have good opportunities in elementary school. There are some indicators that can help measure the likelihood of a student graduating on time from high school. According

to Ritter's (2015) study of on-time high school graduation, three general factors can be used to collectively predict on-time graduation: 1) Economic, 2) Demographic, and 3) Student Characteristics. Ritter (2015) concluded that ninth grade is the most critical year for determining on-time graduation. Some of the factors that influence on-time graduation include: had a GPA of 2.5 or higher in grade 9, failed one or fewer semester courses, were absent fewer than eight days, were never suspended prior to grade 9, and never moved between schools during middle school. Additionally, Ritter (2015) found that the following factors were weak but statistically significant in decreasing the likelihood of graduating on-time: Free and Reduced-price Meals System (FARMS) status, suspension, number of days absent during grade 9, and school mobility. Another study confirmed that a student's performance in the first semester and first year of high school is key to predicting on-time graduation (Allensworth & Easton, 2005). On-time graduation can be an important measure of a child's well-being and later success.

The strongest indicators of a student's on-time graduation include family socioeconomic characteristics, such as: socioeconomic status, family structure, family stress (death, divorce, family moves), and the mother's age (Ritter, 2015). Students who come from low-income families, who are the children of single, young, unemployed mothers, or who have experienced high degree of family stress are more likely than other students to drop out of school (Ritter, 2015). Of those characteristics, low socioeconomic status has been shown to bear the strongest relationship to a student's tendency to drop out (Ritter, 2015). When it came to predicting on-time graduation of high school freshmen, researchers found that being on- or off-track at the end of freshman year was a far more reliable indicator of graduation than eighth grade test scores (Allensworth & Easton, 2005). While our study does not deal with on-time graduation rates, our goal was to test if some of the child wellbeing indicators mentioned above could be used to predict SOL scores.

Additionally, disability and special care needs influence children's wellbeing. Children with disabilities represent a diverse group of conditions that range from mental and behavioral diagnosis to special healthcare needs and learning disabilities. The National Survey of Children's Health reported that one in five children in the United States have special health care needs (Annie E. Casey Foundation, 2024). The National Center for Education Statistics reported that 15% of U.S public school students received special education services for disabilities in the year 2022-2023 (Annie E. Casey Foundation, 2024). These children are more likely to experience challenges academically, socially, emotionally and in other areas when compared to children without disabilities or special healthcare needs

(Annie E. Casey Foundation, 2024). Only one in four children with special health needs are consistently engaged in school. (Annie E. Casey Foundation, 2024). In addition to school absences, children with chronic medical illnesses and activity restrictions, may be unable to participate in extra-curricular activities and feel isolated from their peers, which may ultimately affect the emotional /psychological wellbeing of the child (Howard & Latella, 2024). Families of children with disabilities or special care needs have higher rates of household food insufficiency, challenges with paying for the child's medical expenses, and more difficulty meeting basic needs (Annie E. Casey Foundation, 2024).

Furthermore, school climate and structure play a significant role in whether students succeed in high school (Allensworth & Easton, 2005). Ahmmmed et al., (2022) argue, as do many other researchers, that teacher quality is tied directly to school quality. They found that a teacher's experience, or lack thereof, is correlated to student learning outcomes. Technology-enhanced education is also a critical factor to student success, as is school leadership, particularly instructional leadership aimed at enhancing the quality of teaching and learning (Ahmmmed et al., 2022). Arslan et al. (2022) examined and found that the Subjective Academic Wellbeing Measure (SAWM) was a reliable and valid measure that can be used to assess the positive academic functioning of students within the school context. We chose variables for our index based upon evidence in the literature and the availability of data.

b) Existing Tools for Measuring Virginia Child Wellbeing Index

In addition to reviewing the general discussion on child wellbeing, we conducted a review of the existing approaches to measuring child wellbeing and examined which indicators are most frequently measured. In addition to various indicators under the economic and academic domains, existing indices typically assign indicators to physical, mental, and social health, quality of environment, and more. For example, under the domain for "Health and Environment", the Child Opportunity Index listed the following indicators: access to healthy food, access to green space, walkability, housing vacancy rate, hazardous waste dump sites, industrial pollutants in air, water or soil, airborne microparticles, ozone concentration, extreme heat exposure, and health insurance coverage (Brandeis University, 2020). Also, cognitive development, social and emotional competence, psychological & behavioral development, and physical health are domains proposed by the Children's Bureau and the U.S. Department of Health and Human Services (Biglan, 2024). Data on global youth mortality and inequality indicated that schools, parents, and communities play a crucial role in promoting the well-

being of youth because they directly impact youth's physical and social environment (Kassebaum et al., 2017). Similarly, the New Zealand Child and Youth Wellbeing Strategy used an even more extensive list of indicators to measure wellbeing in different areas (New Zealand Ministry of Social Development, n.d.).

On the international scale, the 2017 Global Youth Well-being Index, created by the International Youth Foundation, measured successes and gaps for youth in 29 countries (Sharma et al., 2017). The index covered seven domains: gender equality, economic opportunity, education, health, citizen participation, safety and security, and information and communication technology. In this index, the U.S. ranked number five out of 29 countries. The U.S. scored poorly in the safety and security, health, and citizen participation domains (Sharma et al., 2017). The Youth Progress Index (2023) is another international-level measure. It used the methodology of the Social Progress Index and global data to measure the quality of life of young people in 150 countries (Youth Progress Index, 2023).

In the U.S. specifically, Land and Lamb (2014) created the Child and Youth Wellbeing Index (CWI) to measure quality of life of youths in some of the following domains: economic/material well-being, health, safety, productive activity, place in community/community engagement, intimacy, and emotional wellbeing. Many of the variables that we used in our analysis can be found in other studies of U.S. elementary schools and school districts, such as the Nebraska Education Profile created by the Nebraska Department of Education to compare schools and districts (Nebraska Department of Education, 2019). The Wellbeing Indicator Tool for Youth (WIT-Y) was created by Anu Family Services and the University of Minnesota's Center for Advanced Studies in Child Welfare and designed for youths who have been in contact with the child welfare system (Center for Advanced Studies in Child Welfare, 2015). The tool used surveys and questions to assess youth health in eight domains to evaluate wellbeing: safety and security, physical health, cognitive health, mental health, relationships, community, purpose, and environment (Center for Advanced Studies in Child Welfare, 2015). Drawing upon this literature, we chose to organize our indicators into ten domains inspired by the domains used in existing child wellbeing tools.

c) Validation of Existing Tools in the Literature

Our review of the literature found various approaches to validating wellbeing indices/tools. To test the validity of a state-level Child Wellbeing Index (CWI), Annie E. Casy Foundation (2007) compared two state-level indices (a composite index of 10 indicators and a second index of 25 indicators). The comparison was intended to determine how well the 10-indicator index captured key state-level variations in children's quality of life reflected in the broader 25 indicator index. The





second reason for the comparison was to determine why some state rankings showed marked differences between the 10 and 25 indicator child wellbeing indices. The Foundation found both indices were highly correlated (+0.93). However, although the 10-indicator index was a good approximation of children's overall quality of life, two indicators captured in the 25-item index (emotional and spiritual well-being, and safety and behavioral factors) were weakly or negatively correlated with the 10-item index (Annie E. Casey Foundation, 2007).

Another approach to validating a wellbeing index was utilized by Wong et al., (2022) who conducted three different regression analyses with the overall family wellbeing index as the predictor and Q24, Q25, and combined Q24 & Q25 as outcomes. The results showed that the overall index had a significant predictive utility on the gauging items. Additionally, the authors examined the predictive utility of the six-domain version of the index on all three outcomes (Q24, Q25, and combined Q24 & Q25) and found statistically significant relationships (Wong et al., 2022).

Sehgal et al., (2024) created a Child Health Index (CHI) comprising of 16 variables under six domains, to characterize child health and detect child health inequities across 707 districts in India. As a validation step for the new tool, the researchers utilized the CHI to predict child mortality. The authors also examined the internal consistency of the variables (Cronbach alpha=0.7662). To examine the external validity of the CHI, the authors assessed the Pearson's correlation ($r=0.736$) between the CHI and "under five child mortality" which was described as a popular state-level indicator for measuring child health (Sehgal et al., 2024).

Riad et al., (2021) validated an educational wellbeing tool among young children ages 4 to 12 years. Similar to previous validation approaches, Riad et al., (2021) reported the psychometric properties of the wellbeing construct measured. For example, the researchers assessed reliability and construct validity and reported a moderate Spearman's correlation ($r_s=0.62$) and Cronbach's alpha ($\alpha=0.62$). The authors concluded that the tool could provide firsthand information about children's wellbeing from the first years of education until elementary school (Riad et al., 2021).

Lastly, to validate the World Health Organization Well-Being Index, Nylen-Eriksen et al., (2022) examined the relationship between well-being, quality of life, social support, self-reported psychological distress, and perceived stress. Specifically, they ran correlation tests between WHO-5 and Oslo Social Support Scale 3 (OSSS-3), Multicultural Quality of Life (MQLI-3), Perceived Stress Scale (PSS-4), and Patient Health Questionnaire for Depression and Anxiety (PHQ-4). The analysis resulted in rejection of the null

hypothesis for all four hypotheses (Nylen-Eriksen et al., 2022). The authors concluded that the WHO-5 tool is a psychometrically robust and validated instrument with excellent reliability and construct validity. For example, the authors found a strong negative correlation between perceived stress and psychological stress and wellbeing (Spearman's correlation coefficient of -0.706 and -0.736 respectively). The tool was also validated for convergent validity (Nylen-Eriksen et al., 2022).

d) *Geographical level of Computing Virginia CWI*

The geographic level at which an index measures wellbeing is an important consideration. As described above, some existing indices measure child wellbeing at the international level, others are measured at the national level. According to a report from the Nebraska Department of Education, elementary schools within the same school district can have varying levels of outcomes amongst their students (Nebraska Department of Education, 2019). To capture these differences, we measured wellbeing at the elementary school attendance boundary level instead of at the census tract or district level. Furthermore, an analysis of eight state-wide studies in South Carolina demonstrated that school size is sometimes correlated to student outcomes and school climate (Stevenson, 2006). If we had conducted our analysis at the district-level, we would have failed to capture differences in individual school size. In England, Gibbons and Silva (2011) used the Longitudinal Survey of Young People in England (LSYPE) to assess student and caregiver attitudes regarding school quality of around 600 schools.

e) *Assessing the Predictive Utility of CWI*

To assess the predictive utility of Virginia CWI, we calibrated the tool with Virginia SOL (Standard of Learning) scores. The SOL tests for Virginia public schools is the official accreditation testing program that measures the success of students in meeting the Board of Education's expectations for learning and achievement across the Commonwealth's 132 school divisions (Virginia Department of Education, 2022). The Commonwealth of Virginia SOL testing system is a standardized test on a 200–600-point scale which assesses student academic achievement. Students take SOL tests at the end of core subjects (English, mathematics, science, history/ social sciences) taught in schools (Allen et al., 2015; Virginia Department of Education, 2022).

The SOL counts toward student graduation and teacher evaluation. A teacher evaluation system that is based upon student performance on the SOL assessments is utilized in Virginia (McCarty, 2015). The SOL is also used to determine if schools and school divisions have met federal standards required by the No Child Left Behind legislation (McCarty, 2015).

Evidence has shown that the "reliability" of SOL assessments is typical of a high-quality assessment,

with Kuder-Richardson 20 (KR-20) coefficient of 0.87 and 0.91 (Allen et al., 2015). Additionally, the test validity of SOL tests is supported by strong uni-dimensionality and observed correlations of between 0.50 to 0.80 with the Stanford 9 achievement tests (Allen et al., 2015). These favorable psychometric properties of the SOL test informed its use as an outcome measure to validate the Virginia CWI.

Additionally, published research by Longwood University Economist reported that a school's SOL pass rates are negatively impacted by having more numbers of students who are Black, Hispanic, and beneficiaries of free and reduced-priced lunch (Sharper, 2013). The authors found that for math and reading, the number of Black students and percentage of children eligible for free and reduced lunch were two best predictors of SOL pass rates. Similarly, large numbers of students who speak English as a second language significantly impacted test scores (Sharper, 2013). Some of the child wellbeing indicators incorporated in our tool are consistent with indicators reported by Sharper (2013) and provides additional support for using the Virginia CWI to predict SOL scores. Similarly, Noelke et al., (2020) reported that 3rd grade reading and math proficiency test scores reflect not only elementary school experiences, but also the broader set of early educational opportunities that children experience through their family settings and through local institutions such as after school programs, libraries, and community programs.

Furthermore, all students in tested grade levels and courses across the Commonwealth are expected to participate in the SOL assessment except exempt by federal law or by Board of Education regulations. Hence, the wide adoption across the Commonwealth favored its utilization as an outcome measure to test the predictive utility of our index.

Justification for the Study

Children, or youth, are a heterogeneous population with unique, intellectual, emotional, physical, and social needs at different stages of development (Cho and Yu, 2020). The types and extent of resources provided by different systems of society to meet those distinct needs can differ, which may explain the divergence of child wellbeing outcomes. Hence, a knowledge of stage-specific status is particularly important for policymaking and planning (Cho and Yu, 2020).

Studies tend to examine children more broadly as a group and while a substantial number of studies reviewed later childhood, fewer studies reviewed early and middle childhood specifically (Cho and Yu, 2020). The scarcity of stage-specific data on children may explain the lack of published research examining the wellbeing of younger children, including children in elementary schools (Cho and Yu, 2020). We sought to

tackle this gap in research by specifically measuring our CWI at the elementary school level. Therefore, we chose elementary schools in Virginia as our study population. Elementary schools in the United States extends from kindergarten (grade k) through 5th grade (ages 5-10).

In the absence of an existing tool that measured child wellbeing of elementary schools across the Commonwealth of Virginia, in 2024 the Office of Health Equity (OHE), Virginia Department of Health (VDH) sought to draw upon existing measures to create a Virginia Child Wellbeing Index (CWBI) for the entire state of Virginia. We utilized elementary school attendance boundaries as the geographic level of measurement, which had never been done in Virginia. We conducted a review of contemporary literature on measuring child wellbeing to determine what indicators would be most relevant.

In 2014, VDH created the Youth wellbeing index (YWBI) in order to measure the overall opportunity that communities provide to young people to live long and healthy lives (VDH Youth wellbeing index, n.d.). VDH's YWBI dashboard reported variables at the census tract level and consisted of 24 variables combined into eight indicators. The eight indicators were: crime, family stability, housing, population density, poverty, pre-K enrollment, primary care access, and psychiatrist access.

Hence, the primary aim of this study is to introduce the newly created CWI as an index for population-level monitoring of well-being among elementary pupils; justify the need for the tool, and highlight the methodology adopted.

The secondary aims are 2-fold: 1) Test the predictive utility of CWI by examining the relationship between indicators of the CWI and SOL scores by elementary school enrollment boundaries across the Commonwealth of Virginia 2) determine which of the CWI indicators are the strongest predictors of SOL scores in elementary schools in Virginia.

II. METHODOLOGY

a) Data Sources

We utilized 2017-2023 datasets sourced from the National Center for Education Statistics (NCES), the Virginia Department of Education (VDOE), and the Urban Institute (National Center for Education Statistics, 2023). Indicators in these datasets are currently available by either NCES-assigned school ID, school number, or school name. Prior to selecting the domains and their respective variables for Virginia's updated CWI, extensive research was conducted to determine indicators of child wellbeing, examples of existing wellbeing indices, and challenges to measuring child wellbeing. SOL datasets were also obtained from VDOE (Virginia Department of Education, 2022). We collected data at the elementary school enrollment





boundary level for the Commonwealth of Virginia. Because we utilized de-identified datasets, IRB approval was not required for this study.

We employed data cleaning procedures to improve data quality of secondary datasets utilized. We treated missing data by imputing minimum values for each variable, except for variables that involved full time equivalents, in which case we replaced missing FTEs with zeros.

b) Indicator Selection

For the purpose of developing a tool for monitoring and evaluating wellbeing at the population-level, researchers generally operationalize well-being by first obtaining data across a defined set of component measures and then aggregate the values into a single estimate in the form of an index (Anderson et al., 2022a). Cho and Yu (2020) found that the most frequently used domains were education, economic wellbeing, health, environment, housing, behaviors and risks/safety and socio-emotional wellbeing.

The CWI for elementary schools in Virginia was estimated from 10 domains, as follows: (1) School Climate/Environment (number of events of chronic absenteeism, school suspensions, behavior that presents a safety concern in schools, behavior related to school operations, behavior incidents involving relationships, behavior that impedes academic progress, and behavior that endangers self and others), (2) Student Teacher Ratio, (3) Socioeconomic (number of students eligible for free lunch, reduced lunch, and percent of students living in poverty), (4) Mental Health Support (number of FTE counselors, social workers, and psychologists), (5) Clinical Support (number of FTE nurses), (6) Instructional Support (number of FTE support staff, FTE instructional aides, and FTE administrators), (7) Teacher Quality (number of days that FTE teachers were absent and number of uncertified FTE teachers), (8) Per-Pupil Expenditure, (9) School Safety (number of FTE law enforcement/security guard personnel) and (10) Percent English Learners. It is worth noting that we chose not to include a health domain because our goal was to use the Virginal CWI as a predictor for health outcomes.

To understand the wellbeing of elementary school children within Virginia, we developed a multidimensional tool to assess relevant indicators of CWI across our study population. No single dimension of well-being stands as a reliable proxy for child well-being. Therefore, satisfactory measurements must quantify children's well-being as a multifaceted concept that takes into account the many areas that affect their well-being (Prada and Sanchez-Fernandez, 2022). Drawing upon this multi-dimensional perspective, we combined various aspects of child-wellbeing into a single measure.

Biglan (2014) reported that the three most important proximal influences on a child's development are the family, school and peers. Therefore, we considered different aspects of a child's well-being, including quality of education, school climate and socioeconomic proxies. Evidence shows that economic status and poverty, school district quality and area affluence, impact children's education and wellbeing (Biglan, 2014). We included the mental health support domain because early childhood experiences of trauma (emotional response to a terrible event) can predict poor mental health across the lifespan. Hence, the need for adequate access to trauma informed practices provided by mental health practitioners (U.S. Department of Education, 2021). Lerang et al., (2021) highlighted that students in classrooms with high instructional support learn and develop better than students exposed to low instructional support. On this premise, we included the instructional support domain.

We were guided by definitions provided on the Urban Institute data dictionary to operationalize the CWI indicators. For example, *percent of students living in poverty* is defined as *the statistical estimate of the percentage of a school's students living in poverty, modified to align with a measure of the school district's poverty* (Urban Institute, 2023). This estimate is the preferred statistic for analysis of large school districts across time or across states (Urban Institute, 2023). Another example is the operational definition for *per pupil expenditure*. The Virginia Department of Education reports annually on total per-pupil expenditures for public school operations by funding source for each school division and statewide (Virginia Department of Education, 2022).

The selection of domains and indicators was grounded in a comprehensive, cross-disciplinary literature review, and further informed by our local context in Virginia. Indicators were selected based on the following criteria: evidence from the literature, availability of reliable data at the school enrollment boundaries, and a variable's potential to inform public health interventions.

For concerns around ambiguity in directionality of relationships, we adopted contextual measures which are always causal factors (predictors) of wellbeing as opposed to individual-level factors which could be predictors or outcomes. For example, unhealthy behaviors such as smoking, or alcoholism could be an outcome of a child experiencing low subjective well-being but can also be a causal factor (Anderson et al., 2022).

Table 1: Child Wellbeing Indicators: Indicators & Domains

Indicators	Domains
Chronic Absenteeism (%)	
Suspension Instances (%)	
Behavior Related to Safety Concerns (%)	
Behavior Related to School Operation (%)	School Climate/Environment
Behavior Incidents Involving Relationships (%)	
Behavior that Impedes Academic Progress (%)	
Behavior that Endangers Self and Others (%)	
Student Teacher Ratio	Student Teacher Ratio*
Number eligible for Free Lunch	
Number eligible for Reduced Lunch	Socioeconomic
Students living in Poverty (%)	
Counselors FTEs	
Social Workers FTEs	Mental Health Support
Psychologists FTEs	
Nurses FTEs	Clinical Support
Academic Support FTEs	
Instructional Aides FTEs	Instructional Support
Administration FTEs	
Teachers Absent FTEs	
Teachers Uncertified FTEs	Teacher Quality
Per-Pupil Expenditures (\$)	Per-Pupil Expenditures
Law Enforcement/Security Personnel FTEs	School Safety Resources
English Learners (%)	Percent English Learners

Note: *FTE* _ Full Time Equivalent

c) Data Analysis

We employed data cleaning procedures to improve data quality of secondary datasets utilized. We treated missing data by imputing minimum values for each variable, except for variables that involved full time equivalents, in which case we replaced missing FTEs with zeros. The statistical analysis was carried out using SPSS version 28.0. Our sample size was 1144 elementary schools in Virginia. We estimated the CWI for all elementary schools in Virginia. Subsequently, we tested the predictive utility of the tool by conducting a multiple regression analysis. We examined the relationship between indicators of the CWI and SOL scores and determined the strongest predictors of SOL scores. The alpha level of significance was set at 0.05.

d) Computation of Virginia CWI

Our CWI consisted of 23 indicators grouped into 10 domains. Most of the component measures are not direct measures of wellbeing but rather proxy indicators of wellbeing. Indicators with a negative orientation (where a high value indicated a bad outcome) were standardized by transforming each indicator into z-scores. Each z-score was reverse coded by multiplying the z-score by (-1). Dimensional indices were then computed for each z-score. Conversely, an indicator with a positive orientation (where high values indicated a favorable outcome) were transformed directly to dimensional indices (min-max scaling/normalization) without standardization into z-scores. Subsequently, the average of the dimensional indices





for each domain was calculated. The average dimensional indices for each domain were linked using census tract FIPS.

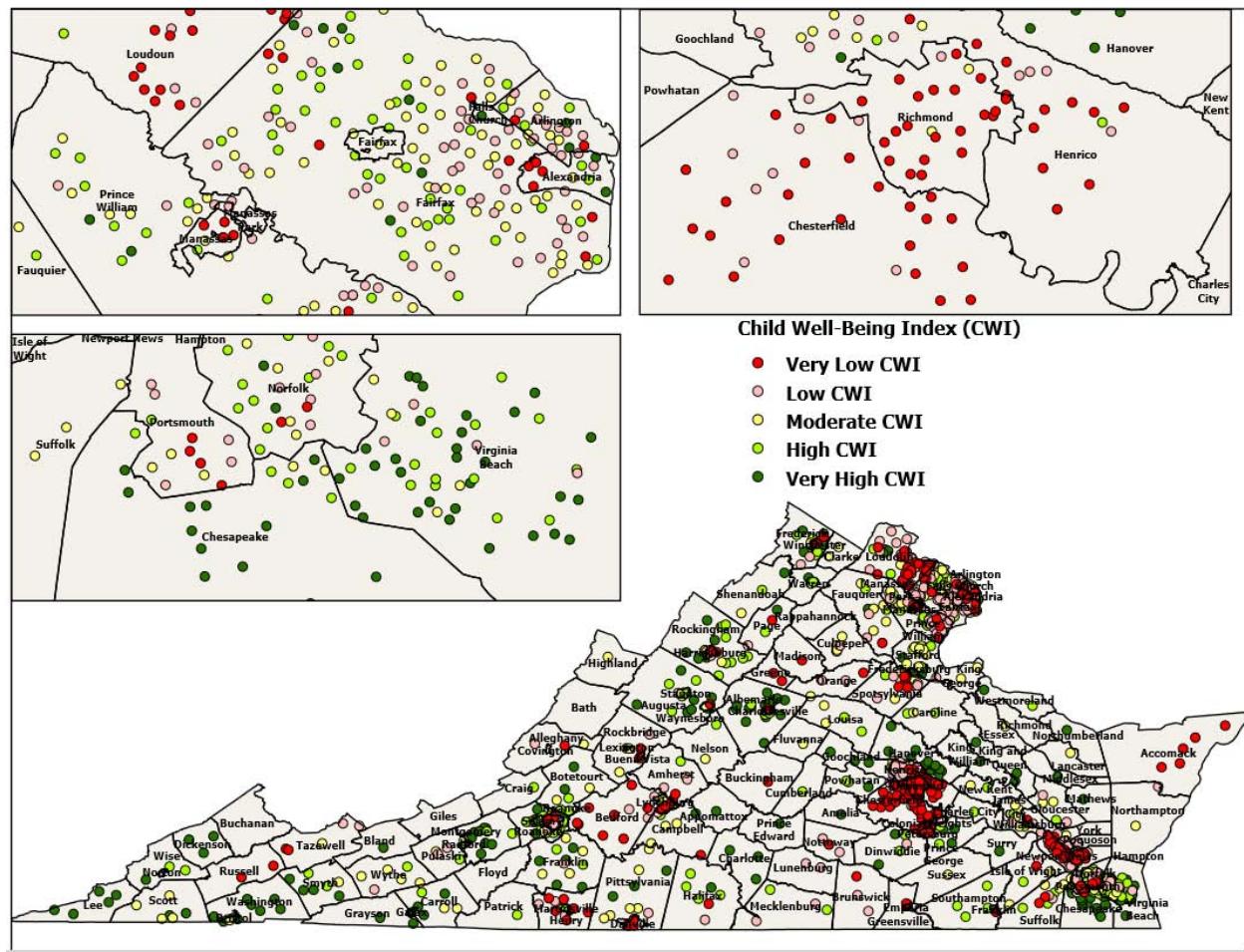
We adopted the method of adjusting weights utilized by Cho and Yu (2020) to calculate the index, which involved principal component analysis. The authors obtained the weight for a given variable by utilizing the product of the standardized coefficient of the underlying factor multiplied by the relevant proportion of the variance explained (Cho and Yu, 2020).

The average dimensional index for each domain was run in Principal Component Analysis of the SPSS software to obtain weights. We applied 10 varimax rotations, which generated 10 factors. Each of the 10 factors was subsequently weighted. The composite CWI score for each elementary school was estimated as an arithmetic mean of all 10 weighted factors. The composite score had a range of 0 to 1, with 0 indicating minimum and 1 indicating maximum child wellbeing index associated with a lower likelihood of worse mental and physical health in elementary school children.

The schools were subsequently grouped by CWI into 5 quintiles, ranging from very low CWI quintile to very high CWI quintile schools. We calibrated the CWI by SOL Scores and obtained a direct correlation of 36%

III. RESULTS

Figure 1 below depicts the spatial variation of CWI across the Commonwealth of Virginia based on the CWI quintiles. Majority of the elementary schools in the Richmond Metro Area and Chesterfield County fall under the very low quintile. In contrast, in the Eastern region of the Commonwealth (such as Virginia Beach, Norfolk, Chesapeake), majority of the elementary schools fall within the "High" and "Very High" Quintiles. A similar situation is seen in Northern Virginia (such as Fairfax). The variation in CWI across counties in Virginia may be related to existing socioeconomic, educational, and structural disparities. For example, median income in Fairfax was reported as \$145,165 compared to \$59,606 in Richmond city (U.S. Census Bureau, 2023). Similarly, the proportion of the population below 100% poverty line was 5.9% in Fairfax, which is significantly less than the proportion in Richmond city (19.5%) (U.S. Census Bureau, 2023). Disparities across education also exist. The U.S. Census Bureau (2023) reported high school graduation rate of 93.5% in Fairfax and 88.8% in Richmond. The on-time graduation rate in Richmond was 72.5%, which is much lower than Fairfax (93.3%). Unfortunately, the drop-out rate reported was significantly higher in Richmond (23.7%) compared to 5.4% in Fairfax (U.S. Census Bureau, 2023).



Data Source: 2017-2023 datasets sourced from the National Center for Education Statistics (NCES), the Virginia Department of Education (VDOE), and the Urban Institute.

Figure 1: CWI of Elementary Schools Across the Commonwealth of Virginia

a) *Testing the Predictive Utility of CWI*

Prior to testing the multivariate regression analysis model (Table 2 below), assumptions of multiple regression analysis were examined, which included normality, homoscedasticity, multicollinearity, and linearity. We assessed multicollinearity by examining the Pearson correlation between the predictors and the outcome variables, the moderate correlation of ($r=0.36$,

represents absence of redundancy. Additionally, we plotted the standardized residuals against the standardized predicted values and confirmed that the assumptions of normality, linearity and homoscedasticity were satisfied. A visual inspection of a box plot indicated that the residuals were normally distributed with 2-3 outliers which were not considered influential on the analysis and were retained.

Table 2: Multivariate Regression Analysis: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.809 ^a	0.654	0.651	8.439

Note: a. Predictors: (Constant), English Learners, Student Teacher Ratio, School Climate, Mental Health Support, Law Enforcement/Security Personnel, Clinical Support, Teacher Quality, Instructional Support, Total Per-Pupil Expenditure, Socioeconomic

b. Dependent Variable: 2021-2022 SOL Pass Rate



Table 3: Multivariate Regression Analysis: Coefficients for Domains of the Child Wellbeing Index

CWI Domains	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
(Constant)	-43.682	5.596		-7.805	<.001
School Climate /Environment	43.54	4.955	0.19	8.788	<.001
Student Teacher Ratio	11.108	4.723	0.048	2.352	0.019
Socioeconomic Indicator	53.783	2.035	0.632	26.434	<.001
Mental Health Support	22.169	5.398	0.09	4.107	<.001
Clinical Support	3.301	2.127	0.034	1.552	0.121
Instructional Support	-12.956	5.954	-0.047	-2.176	0.03
Teacher Quality	17.603	3.616	0.101	4.868	<.001
Total Per-Pupil Expenditure	1.587	2.559	0.014	0.62	0.535
Law Enforcement/Security Personnel	3.122	1.356	0.044	2.302	0.022
English Learners	15.745	1.609	0.224	9.787	<.001

Note: a. Dependent Variable: 2021-2022 Pass Rate

IV. DISCUSSION

We bring to the literature, nontraditional variables that measure child wellbeing, which is an improvement in quantitative terms, and allows for the identification of domains for which an elementary school performs better and those for which it does not. This approach facilitates identifying where particular efforts should be made to improve child wellbeing in each elementary school.

Our results showed SOL scores were significantly related to most of the CWI indicators, with the exception of clinical support and total per-pupil expenditure indicators, which both had non-significant associations with SOL scores (table 3 above). In a similar study, Sharper (2013) predicted that changing per pupil expenditure, or percentage of experienced teachers may result in very little change in SOL scores.

To further examine the observed associations in our study, we compared the magnitude and direction of the coefficients. Nine of the ten indicators had a positive direct relationship with the outcome. The model showed that socioeconomic indicator was the strongest predictor of CWI across elementary schools in Virginia. The American Psychological Association (2024) highlighted that socioeconomic status encompasses quality of life attributes, including income, educational attainment, occupational prestige, and the subjective perceptions of social status, and social class.

In our study, a unit increase in favorable socioeconomic conditions in elementary schools resulted in a 53.78% increase in SOL scores ($b=53.78$, $p<0.001$). Other studies have reported similarly, Munir et al. (2023) reported that students with higher socioeconomic backgrounds performed better academically, however, parental participation and school resources

were important buffers in the association between socioeconomic status (SES) and academic performance. Students with higher SES backgrounds generally have access to educational role models, wide range of learning resources, social ties and experiences that facilitate learning (Munir et al., 2023). Additionally, neighborhoods with high economic resources invest more into amenities that depend on local funding, such as schools, parks ,and after school programs, which influence child development and later educational, economic, and health outcomes (Noelke et al., 2020).

Conversely, children from low-SES families scored at least ten percent lower than the national average on national achievement scores in reading and mathematics (American Psychological Association, 2024). Ritter (2015) highlighted increasing disparities in test scores between the poor and wealthier students in the United States. The National Household Education Survey reported that poor children in grades one through three were nearly three times more likely to repeat a grade and poor children in kindergarten through third grade were more than twice as likely to have an individualized education plan for special education needs (Ritter, 2015). Hence, children and students who live in poverty are likely to drop out of schools, continue the poverty cycle and have bleak economic and social prospects (Ritter, 2015).

In addition to academic performance, socioeconomic status impacts on other aspects of a child's wellbeing. Family poverty is associated with food insecurity and hunger, homelessness, parents who are absent (E.g. parents who are incarcerated due to drug use/domestic violence), and other factors such as adverse health outcomes, all of which may negatively impact on a child's wellbeing (Ritter, 2015). Additionally, Poulain et al. (2019) studied 2998 children aged 3-18

years and found that higher SES composite scores were associated with better outcomes and behavior, including higher quality of life, fewer behavioral difficulties, lower BMI, and a healthier lifestyle.

The school climate indicator was the second strongest predictor of SOL scores in our study. A unit increase in positive school climate in elementary public schools across Virginia resulted in a 43.5% increase in SOL scores (Unstandardized $b=43.54$, $p< 0.001$). A study by Belton and Brinkmann (2024) found that school climate had the strongest correlation to SOL scores in elementary public schools in Virginia. The authors also highlighted that although SES is one of the greatest indicators of students' achievement, providing a positive learning environment in schools will enable students to achieve at a higher level than what their socioeconomic background would otherwise predict. Additionally, positive school climate can improve academic achievement, decrease problematic behaviors and decrease high school dropout rates (Belton and Brinkmann, 2024). A study had reported that students from impoverished settings failed to graduate high school at six times the rate of higher income youths and five times the rate of middle-income youths (American Psychological Association, 2024).

The only indicator in our study with a negative inverse relationship with SOL scores is the Instructional support indicator (Unstandardized $b=-12.95$, $p<0.03$). Lerang et al. (2021) described instructional support as a multifaceted construct that involves teaching practices and instructional strategies that enhance students' cognition and learning. Hence, previous studies reported that instructional support is positively associated with student learning (Lerang et al., 2021). A large-scale randomized trial reported that increasing instruction time (i.e FTEs) in schools increased student learning (Andersen et al., 2016). However, our study findings suggest a statistically significant negative association of increased instructional support FTE's with SOL scores. Nevertheless, some observational studies have suggested that increasing instructional time in schools may have potential negative impact on student achievement, sequel to fatigue and boredom (Andersen et al., 2016).

V. POLICY IMPLICATION

Public policy has the capacity to promote well-being by shaping the contexts in which children live, which includes the family, school, and community (Anderson et al., 2022a). Andersen et al., (2022b) attributed advancements in high school graduation from the year 2000 to 2019 to improvements in quality of elementary school education, improved access to high quality pre-schools, reduction in teenage pregnancies and arrest rates, reduction of class sizes, and incentivizing higher teacher performance.

The CWI can be utilized by policy makers to identify and target elementary schools across the Commonwealth of Virginia that are in need of improvement. The CWI can inform prioritizing resource allocation to schools with low SOL scores and instituting localized support programs. A recognition of the impact of SES on academic achievement as demonstrated by our result findings and the identification of underlying mechanisms can aid educators and policy makers in developing targeted strategies to bridge the academic achievement gap and address educational disparities (see Munir et al., 2023). Such mitigation strategies can include support programs, instructional modifications, curriculum development, facilitating parental involvement and improved access to educational resources that cater to the needs of children from disadvantaged backgrounds, which will ultimately improve outcomes (see Munir et al., 2023).

The results of our study can inform other policy actions such as nutritional assistance programs in economically disadvantaged schools, and financial support for school supplies. Policies should aim to reduce the resource disparities between elementary schools and promote a supportive educational environment (see Munir et al., 2023). Recommendations for elementary schools in the lower quintiles of the CWI include, providing teachers with more opportunities for professional development, developing a comprehensive summer school program that allows elementary school children gain academic credit over the summer, monitoring school performance, discipline, and attendance records (see Ritter, 2015).

Lower CWI quintile schools across the Commonwealth of Virginia should identify evidence-based goals and targets. All staff should be involved and planning teams assigned to different goals. Created teams should meet regularly to assure progress. Obtaining government commitment, engaging non-profit organizations and the general public is paramount for securing funding and implementation of such intervention efforts (see Ritter, 2015). Progress can be measured by adopting evaluation strategies and adjustments can be made each year both to the plan and to the activities around improvement via a continuous quality improvement approach (see Ritter, 2015).

VI. LIMITATIONS

A few factors may limit the scope of our analysis. Firstly, datasets for some indicators we intended for inclusion were not available at the elementary school attendance boundary level. An example of such indicator is family socioeconomic characteristic which has been reported to significantly impact child wellbeing. Hence, the limitations in data-availability may have caused some disconnect between



theory and the quantitative assessment of wellbeing (see Anderson et al., 2022b). Nevertheless, other studies have reported on data unavailability or limited data access as a long-term and persistent challenge in the selection of indicators (Cho and Yu, 2020).

Secondly, we were unable to include data and indicators available at other geographic levels and subsequently map such datasets to our geographic level, because school attendance boundaries are constantly changing and redrawn. Erbsterin et al.(2013) argue that youth well-being in the United States should be measured at the school district level because school district boundaries "often reflect municipal boundaries... and therefore present a policy-relevant geography with respect to youth well-being."(p.268). However, Virginia has no centralized method of redrawing school boundaries and each school district is in charge of drawing its own school boundaries. Hence, we were unable to link geographic levels like census tract to school attendance boundaries.

Similar to limitations highlighted by Anderson et al. (2022b), the indicators of our CWI were not grounded in the subjective experiences of younger children, and objective and subjective experiences are important in providing a holistic picture of a child's wellbeing (Anderson et al., 2022b).

Additionally, our CWI does not capture individual level measures of wellbeing (such as an individual child's academic achievement, health status or health behavior) or contextual determinants of wellbeing (such as an individual child's surrounding environment or parents income) because our sole goal for the index was to understand how systems and policies influence child wellbeing (see Andersen et al., 2022a).

Furthermore, the cohort of elementary school children in this study represent a particular time and period in the United States context that may not adequately translate to measuring well-being in other school context (Andersen et al., 2022a).

We also recognize that vulnerable children like foster children and children experiencing homelessness are likely under-represented in the elementary school population across the Commonwealth of Virginia.

Nevertheless, this study adds to the existing literature, a methodology that could derive a stronger measure of child wellbeing for children in elementary schools in jurisdictions across the United States.

VII. CONCLUSION

Indepth understanding of children's wellbeing is critical. For the purpose of monitoring and evaluation at the population-level, we operationalized child well-being by gathering data across a defined set of component measures and then aggregated the information into a single index. Subsequently, we examined the predictive

utility of the tool in predicting SOL scores and identified socioeconomic factors and positive school climate as two strongest predictors of SOL scores across the Commonwealth of Virginia.

This study presented population level research that holds great promise. Our CWI adopted several methodological improvements to prior indices, such as allocating weights to each CWI domain based on levels of relevance to child wellbeing. Adopting a rigorous approach to measuring child wellbeing in different jurisdictions across the United States is important in making advances to population health of children at the elementary school level. Additionally, inequities across school enrollment boundaries must be addressed with a focus on economic inequality, social and structural inequities, and other systems that shape the contexts in which children learn, play and grow.

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Proposal for an Integrity Program Adapted to the Context of CISAN Municipalities

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Resumo- Este estudo propõe um programa de integridade adaptado às particularidades e capacidades institucionais dos municípios integrantes do Consórcio Intermunicipal do Semiárido Nordeste II da Bahia (CISAN), investigando os fatores institucionais que influenciam essa implementação e examinando as expectativas dos gestores de controle interno quanto aos impactos na governança municipal. Este estudo adotou uma abordagem qualitativa e exploratória, por meio de um estudo de caso múltiplo. Para isso, utilizou-se de duas fontes de dados: i) realização de entrevistas semiestruturadas com sete gestores de controle interno de municípios membros do CISAN, e, ii) análise de documentos oficiais. Os dados foram analisados por meio da técnica de análise de conteúdo, utilizando o software ATLAS.ti., agrupados em categorias e temas que possibilitaram a sistematização dos achados. Os resultados indicaram que a capacidade administrativa limitada, devido à escassez de recursos humanos qualificados e infraestrutura tecnológica insuficiente, é um dos principais obstáculos à implementação eficaz de programas de integridade. A estrutura organizacional centralizada e a resistência cultural interna também foram identificadas como barreiras significativas.

Palavras-chave: *programas de integridade, governança pública, governança municipal, fatores institucionais, transparência pública, controle interno, estratégias anticorrupção, consórcio intermunicipal.*

GJHSS-H Classification: *JEL Code: H83*



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Proposal for an Integrity Program Adapted to the Context of CISAN Municipalities

Proposta de um Programa de Integridade Adaptado ao Contexto dos Municípios do CISAN

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Resumo- Este estudo propõe um programa de integridade adaptado às particularidades e capacidades institucionais dos municípios integrantes do Consórcio Intermunicipal do Semiárido Nordeste II da Bahia (CISAN), investigando os fatores institucionais que influenciam essa implementação e examinando as expectativas dos gestores de controle interno quanto aos impactos na governança municipal. Este estudo adotou uma abordagem qualitativa e exploratória, por meio de um estudo de caso múltiplo. Para isso, utilizou-se de duas fontes de dados: i) realização de entrevistas semiestruturadas com sete gestores de controle interno de municípios membros do CISAN, e, ii) análise de documentos oficiais. Os dados foram analisados por meio da técnica de análise de conteúdo, utilizando o software ATLAS.ti., agrupados em categorias e temas que possibilitaram a sistematização dos achados. Os resultados indicaram que a capacidade administrativa limitada, devido à escassez de recursos humanos qualificados e infraestrutura tecnológica insuficiente, é um dos principais obstáculos à implementação eficaz de programas de integridade. A estrutura organizacional centralizada e a resistência cultural interna também foram identificadas como barreiras significativas. A partir desses resultados, foi proposto um modelo de programa de integridade estruturado em oito etapas, adaptado às realidades desses municípios. Conclui-se que para promover uma cultura de integridade eficaz nos municípios do CISAN é necessário adaptar-se às suas particularidades. Direções futuras sugerem a ampliação do escopo geográfico, a inclusão de perspectivas de outros atores, como líderes políticos e membros da sociedade civil, e o uso de abordagens quantitativas para aprofundar a compreensão do tema.

Palavras-chave: *programas de integridade, governança pública, governança municipal, fatores institucionais,*

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transparência pública, controle interno, estratégias anticorrupção, consórcio intermunicipal.

I. INTRODUÇÃO

A integridade pública é amplamente reconhecida como um pilar essencial para a confiança nas instituições, desempenhando um papel crucial na promoção da transparência e responsabilidade (OCDE, 2018). Ela envolve a articulação entre diferentes atores públicos e sociais para uma governança mais coerente e orientada pelo interesse público (Hoekstra & Kaptein, 2021; Munive Pariona, 2022).

No âmbito dos municípios brasileiros, onde a proximidade com os cidadãos é maior e as demandas da população são mais diretas, conforme estabelecido pela Constituição de 1988, a discussão sobre a integridade pública merece especial atenção. Essa condição também expõe os municípios a riscos específicos, como a influência de interesses locais e a captura de agentes públicos (Munive Pariona, 2022).

Os municípios que compõem o Consórcio Intermunicipal do Semiárido Nordeste II da Bahia (CISAN) exemplificam esses desafios. São municípios pequenos com forte dependência das transferências intergovernamentais da União para financiar suas despesas e implementar políticas públicas (Grin et al., 2021; Lira & Diniz, 2019; Stein, 2015). Nessa perspectiva, estão mais suscetíveis a riscos de desvios éticos e morais, por não possuírem condições adequadas de instituir estruturas de prevenção (Hoekstra; Kaptein, 2021; Six, 2012; Lasthuijen; Huberts; Heres, 2011; Huberts).

Essa fragilidade é corroborada pelo Programa Nacional de Prevenção à Corrupção (PNPC), conduzido pela CGU e pelo TCU, que demonstram que menos de 2% das entidades públicas no Brasil possuem mecanismos eficientes para reduzir práticas corruptas, com os municípios entre os mais suscetíveis a esses riscos (TCU, 2021). Isso inclui desde a falta de departamentos dedicados ao controle interno e à auditoria até a inexistência de processos claros de monitoramento e avaliação de políticas (De Bona, 2022; Munive Pariona, 2022).

Nesse cenário, a institucionalidade da integridade pública por meio de programas se



apresenta como um caminho necessário para aprimorar os processos administrativos, fortalecer as instituições e reconquistar a confiança dos cidadãos (Hoekstra & Kaptein, 2021; Varas & Machuca, 2021).

A perspectiva central deste estudo gira em torno de que os Programas de integridade são ferramentas essenciais para prevenir a corrupção e promover uma cultura ética no setor público. No entanto, para ser efetivo, é crucial que sejam adaptados às especificidades de cada município, considerando suas particularidades socioeconômicas e institucionais (Hoekstra et al., 2023; Hoekstra & Kaptein, 2012, 2021; Leo W. J. C. Huberts & Six, 2012; Varas & Machuca, 2021).

Além disso, esta pesquisa parte do pressuposto de que a integridade na governança está associada a melhorias na prestação de serviços públicos. Quando as instituições seguem padrões éticos, os recursos públicos são alocados de maneira mais eficaz, resultando em melhores resultados para os cidadãos. Quando os cidadãos percebem benefícios concretos das ações do governo, a confiança nessas instituições aumenta (De Graaf et al., 2018; Leo W. J. C. Huberts & Six, 2012; Santos & Paulillo, 2022; Viol, 2021).

Diante desse contexto, a questão de pesquisa que orienta este estudo é: Como os municípios do CISAN podem aprimorar seus processos administrativos para fortalecer a integridade institucional e promover uma governança pública mais eficiente? O objetivo geral é propor um Programa de Integridade adaptado à realidade dos municípios do CISAN, considerando suas especificidades e restrições, e alinhado às melhores práticas internacionais em integridade pública (Hoekstra et al., 2023; Hoekstra & Kaptein, 2021; OCDE, 2018).

Este estudo contribui para não apenas ampliar o conhecimento teórico sobre o tema, mas também oferecer subsídios práticos que possam transformar as práticas administrativas dos municípios de menor porte que enfrentam desafios significativos em termos de recursos e capacidade administrativa. Os resultados beneficiarão gestores públicos, servidores e a população em geral, promovendo uma cultura de integridade e transparéncia que pode impactar positivamente a qualidade dos serviços públicos e a confiança nas instituições (De Graaf et al., 2018; Hoekstra & Kaptein, 2021; L. Huberts, 2020; Santos & Paulillo, 2022; Viol, 2021).

Para realização da pesquisa, adotou-se uma abordagem qualitativa exploratória, utilizando procedimentos como análise documental e entrevistas semiestruturadas com gestores e servidores da área de controle interno dos municípios do CISAN. Serão identificadas as práticas atuais relacionadas à integridade e analisadas as necessidades específicas de cada município, visando à proposição de um

programa que seja viável e eficaz no contexto local (Menezes et al., 2023; Perlman et al., 2024).

O artigo está estruturado em cinco seções, além desta introdução. A segunda seção apresenta a revisão da literatura sobre governança, integridade pública e programas de integridade. A terceira seção detalha a metodologia adotada, descrevendo os procedimentos de coleta e análise de dados. A quarta e quinta seções apresentam e discutem os resultados obtidos e propõe o Programa de Integridade adaptado aos municípios do CISAN. Por fim, a última seção traz as conclusões do estudo e sugerindo direções para pesquisas futuras.

II. REFERENCIAL TEÓRICO

a) Programas de Integridade como Pilar da Governança Pública

A integridade na administração pública é um pilar da governança pública essencial para a construção da confiança dos cidadãos (OCDE, 2018). Envolve agir de acordo com valores alinhados da sociedade (Boyd-Swan & Molina, 2019). Segundo a OCDE (2022), os programas de integridade (PI) surgem como uma resposta estratégica à corrupção, priorizando valores éticos que favorecem o interesse público.

A partir dessa abordagem, a atenção a essas estratégias tem aumentado significativamente em detrimento da necessidade promover serviços públicos mais íntegros (Hoekstra et al., 2023). Essa noção, aliada a transparéncia e a prestação de contas têm sido destacadas como componentes essenciais para garantir a confiança pública, conforme Bastida Albaladejo (2019).

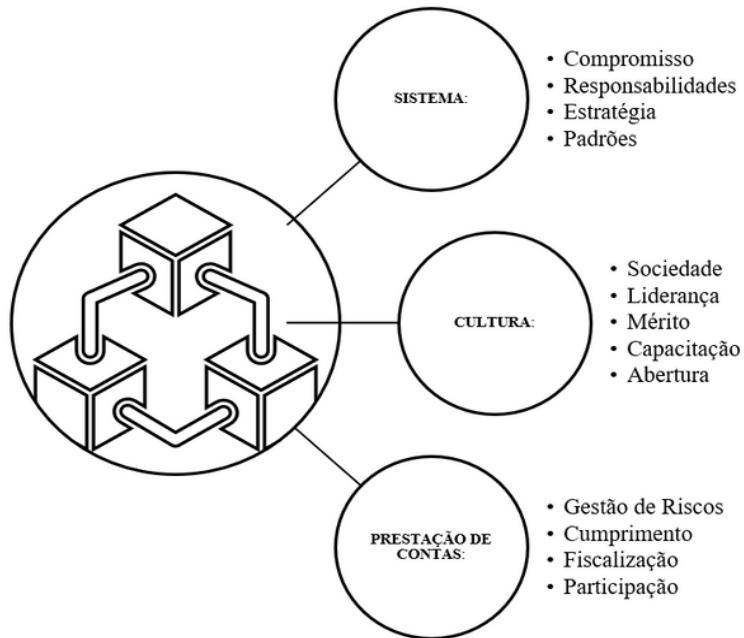
Embora não haja uma solução única para o desafio da integridade pública, a implementação de programas de integridade é uma ferramenta eficaz para combater a corrupção e fortalecer a gestão pública, conforme apontado pela OCDE (2022) e CGU (2021). Tais sistemas são fundamentais para consolidar uma administração pública baseada na transparéncia, na ética e na eficiência, sempre fundamentada em valores morais e regulamentos legais (Amorim & Oliveira, 2022; Barreto & Vieira, 2021; Hoekstra et al., 2023; L. W. J. C. Huberts, 2018; Montfort et al., 2018; OCDE, 2018).

Apesar disso, um ponto crucial que não pode ser esquecido é que há uma distinção relevante entre os conceitos de compliance e programas de integridade. Enquanto o compliance refere-se ao cumprimento de leis e regulamentos, garantindo que as organizações estejam em conformidade com as regras, os programas de integridade vão além. Eles envolvem práticas e políticas internas voltadas a assegurar a integridade das ações das instituições públicas, promovendo uma cultura ética em todas as esferas (Araripe & Machado, 2018).

A distinção é importante, pois a promoção da integridade pública exige um alicerce robusto que envolve diretrizes claras e normativas que estabeleçam padrões éticos e vetem qualquer ação não transparente ou ilegal (OCDE, 2022; Vieira & Barreto, 2019). Essa visão vai além do simples estabelecimento de normas e punições em casos de desvios.

É nesse contexto que a OCDE (2018) sugere uma abordagem tríplice (Sistema, Cultura e Prestação

de Contas) que tem como propósito criar um ambiente onde a integridade é valorizada e praticada em todos os níveis, desde a formulação de políticas até a implementação, objetivando assim que os recursos públicos sejam usados de maneira eficaz e transparente, e que a corrupção seja minimizada, conforme a figura 1:



Fonte: Elaborado pelos autores (2024).

Figura 1: Diretrizes de um Sistema de Integridade Conforme OCDE

Conforme a figura 1, esses elementos dispostos na abordagem proposta pela OCDE atuam em conjunto para criar um ambiente onde a integridade é priorizada e praticada de forma consistente em todos os níveis governamentais. O pilar do Sistema estabelece padrões, responsabilidades e estratégias claras, garantindo que as ações sejam orientadas por princípios éticos. A Cultura organizacional, por sua vez, valoriza a liderança ética, o mérito e a capacitação, promovendo uma atmosfera de abertura e confiança. Já o componente de Prestação de Contas assegura que os recursos públicos sejam geridos de forma transparente e responsável, com mecanismos de fiscalização e participação social que incentivem o controle democrático.

Nessa linha de entendimento, conforme aponta L. Huberts (2020) ao adotar altos padrões de integridade em todas as fases da governança, as instituições públicas aumentam a percepção de confiabilidade e eficiência, o que impacta diretamente a confiança dos cidadãos. Assim, quando seguem padrões éticos, os recursos públicos tendem a ser alocados de maneira mais eficaz, resultando em

melhores resultados para os cidadãos, o que contribui para a confiança da população aumentar (Leo W. J. C. Huberts & Six, 2012; OCDE, 2022)

b) Programas de Integridade no Contexto Brasileiro

A preocupação com a integridade nas organizações públicas brasileiras ganhou destaque significativo nas últimas décadas, impulsionada por escândalos de corrupção que abalaram a confiança da sociedade nas instituições governamentais. Segundo Viol (2021), a intensificação do combate à corrupção no país levou à necessidade de fortalecer mecanismos que promovam a ética e a transparéncia na administração pública. Nesse contexto, os programas de integridade emergiram como instrumentos essenciais para aprimorar a governança e restaurar a credibilidade das instituições.

O marco teórico desse movimento no Brasil encontra-se na promulgação da Lei n.º 12.846/2013, conhecida como Lei Anticorrupção, que estabeleceu a responsabilidade objetiva das pessoas jurídicas por atos lesivos contra a administração pública, nacional ou estrangeira. Santos & Paulillo (2022) destacam que essa legislação incentivou as organizações a

implementarem programas de integridade como forma de mitigar riscos e demonstrar comprometimento com a conformidade legal e ética.

Apesar disso, o país tem apresentado avanços como força contínuo para estruturar um arcabouço legal que incentive e norteie a implementação de programas de integridade em todas as esferas governamentais. Exemplos dessas iniciativas incluem a Lei nº 12.527/2011 (Lei de Acesso à Informação), a Lei nº 12.846/2013 (Lei Anticorrupção), o Decreto nº 8.420/2015, o Decreto nº 9.203/2017, as Portarias CGU nº 1.089/2018 e nº 57/2019, o Decreto nº 9.755/2019, o Decreto nº 10.306/2020, o Decreto nº 10.540/2020, a Resolução nº 4/2020 e o Decreto nº 11.529/2023. Essas normas implementam políticas de integridade visando melhorar os serviços públicos, combater a corrupção e aumentar a transparência.

Neste cenário, os programas de integridade são definidos como um conjunto de medidas internas que visam prevenir, detectar e remediar atos ilícitos e práticas corruptas, promovendo uma cultura organizacional baseada em valores éticos (Santos & Paulillo, 2021). Segundo o Decreto Federal nº 11.129/2022, um programa de integridade consiste em mecanismos internos, incluindo auditoria, incentivo à denúncia e aplicação de códigos de ética, com o objetivo de prevenir, detectar e sanar irregularidades e atos ilícitos contra a administração pública.

Os programas de integridade eram percebidos predominantemente como mecanismos de conformidade legal (*compliance*), focados na prevenção de sanções e na adequação às normas vigentes (Araripe & Machado, 2018). No entanto, ao longo dos anos, tem-se percebido uma evolução conceitual que ampliou essa perspectiva, incorporando valores éticos e culturais às práticas organizacionais, seguindo as Recomendações da OCDE e da Literatura internacional. Nesse sentido, no Brasil, Segundo Viol (2021), a Controladoria-Geral da União (CGU) desempenhou um papel fundamental nesse processo, ao institucionalizar programas que não se limitam à conformidade, mas buscam promover uma cultura organizacional pautada na ética e na responsabilidade.

Essa evolução reflete uma compreensão mais ampla da integridade, que não se restringe a um conjunto de regras a serem seguidas, mas abrange a incorporação de valores éticos em todos os níveis da organização (Hoekstra & Kaptein, 2021). Nesse contexto, programas de integridade eficazes devem considerar não apenas a conformidade legal, mas também a promoção de uma cultura ética, a liderança comprometida e a participação ativa de todos os stakeholders (Menezes, Mendonça & Carvalho, 2024).

Nessa conjuntura, Viol (2021) ao examinar o papel da Controladoria-Geral da União (CGU) como indutora da integridade pública, evidencia avanços na institucionalização de programas de integridade, mas

também aponta desafios relacionados à cultura organizacional e à resistência a mudanças. Por sua vez, Araripe e Machado (2018) discutem a eficácia de políticas públicas baseadas em "nudges" em comparação com obrigações legais na implementação de programas de integridade. Eles argumentam que, embora as exigências legais sejam importantes, estratégias que incentivem comportamentos éticos de forma voluntária podem ser mais sustentáveis a longo prazo, promovendo uma mudança cultural mais profunda nas organizações.

Hoekstra e Kaptein (2021) propõem um framework normativo que enfatiza a integridade dos próprios programas de integridade, ressaltando que a autenticidade, a coerência e a aplicabilidade prática são fundamentais para seu sucesso. Além disso, Kerkhoff e Overeem (2020) discutem a fluidez das normas de integridade e a necessidade de adaptabilidade dos programas ao contexto social e cultural em que estão inseridos.

Do mesmo modo, Munive Pariona (2022), destaca a necessidade de um modelo de integridade que integre diversas iniciativas para fortalecer a governança. Essa proposta enfatiza a importância de promover uma cultura organizacional que valorize a ética e a transparência, aspectos também ressaltados por Hoekstra e Kaptein (2021) em seu framework normativo para programas de integridade.

Essa evolução está alinhada com a necessidade de desenvolver programas que sejam eficazes na prevenção da corrupção e que promovam a integridade como valor fundamental nas organizações públicas e privadas (Barreto & Vieira, 2021; Viol, 2021). E ainda, De Bona (2022) explorou a fragilidade das instituições de integridade em pequenas cidades, ressaltando a necessidade de fortalecer os Sistemas de Integridade Locais para reduzir a incidência de corrupção.

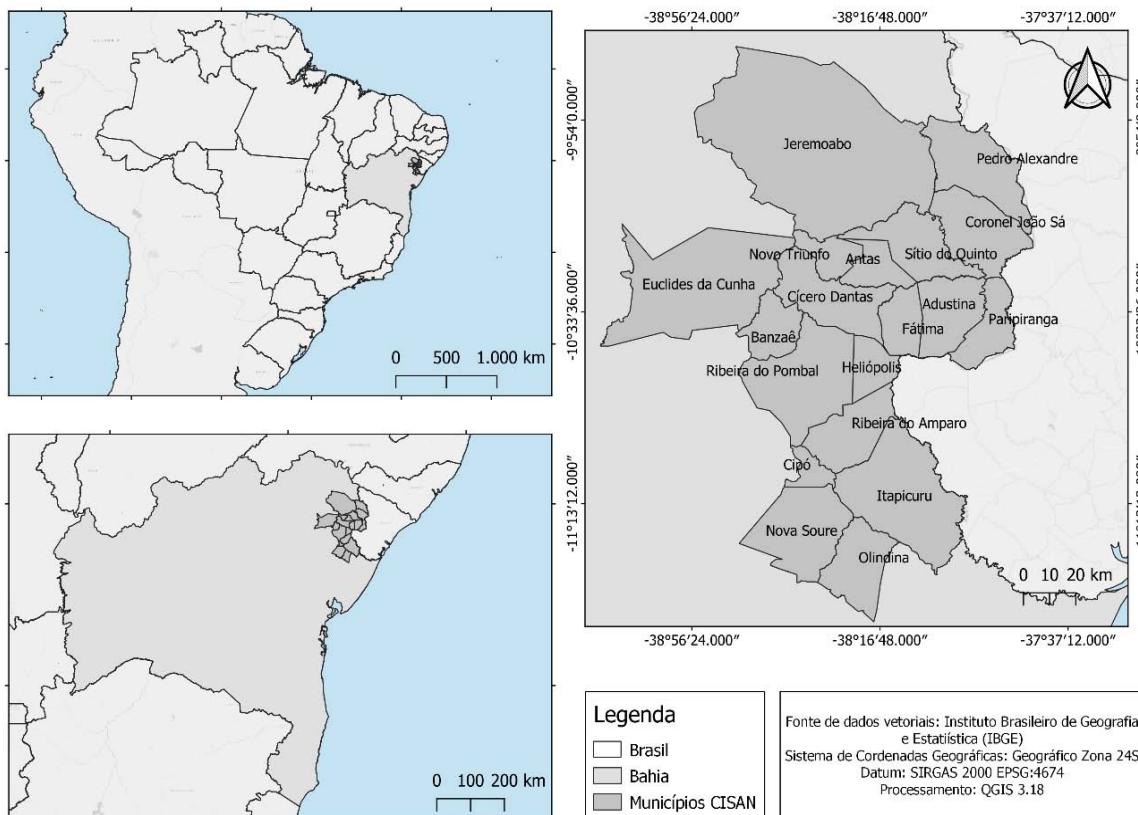
Diante desse panorama, os estudos indicam a necessidade para a compreensão de que a implementação de programas de integridade requer uma abordagem integrada e adaptativa ao contexto organizacional específico, considerando as particularidades culturais e sociais de cada entidade (Hoekstra, Huberts & van Montfort, 2023; Huberts & Six, 2012). Integrando esses aspectos, é possível desenvolver estratégias que orientem a implementação desses programas de forma eficaz, contribuindo para o fortalecimento da governança e para a confiança nas instituições públicas.

III. METODOLOGIA

Este estudo adota uma abordagem qualitativa e exploratória, visando entender as dinâmicas específicas dos municípios do CISAN. A escolha pela metodologia qualitativa permite capturar a complexidade dos fenômenos sociais e administrativos

nesse contexto, enquanto a abordagem exploratória ajuda a identificar padrões e práticas que podem orientar diretrizes preliminares para programas de integridade – um tema relativamente novo nesses municípios.

Para o desenvolvimento do estudo, optou-se por um estudo de caso múltiplo com base no modelo de Yin (2015) o qual permite uma análise detalhada dos desafios e particularidades de municípios com características regionais semelhantes. O estudo é considerado intrínseco, pois se concentra nas especificidades dos municípios do CISAN, sem pretensão de generalização para outras regiões (Stake, 2000).



Os municípios que fazem parte do Consórcio são: Antas, Ajustina, Banzaê, Cícero Dantas, Cipó, Coronel João Sá, Euclides da Cunha, Fátima, Heliópolis, Itapicuru, Jeremoabo, Nova Soure, Novo Triunfo, Olindina, Paripiranga, Pedro Alexandre, Ribeira do Amparo, Ribeira do Pombal e Sítio do Quinto, totalizando 19 municípios do Território Semiárido Nordeste II. Conforme dados do IBGE referente ao ano de 2021, juntos reúnem uma população estima de 451.043 (Instituto Brasileiro de Geografia e Estatística, 2021), com características econômicas, culturais e sociais semelhantes. A principal fonte de geração de riqueza nesses municípios é o setor de serviços, principalmente oriundo da administração pública.

Figura 2: Municípios do CISAN

A coleta de dados foi realizada em duas etapas. Primeiramente, foram conduzidas entrevistas semiestruturadas com gestores de controle interno dos municípios do consórcio, buscando uma compreensão abrangente do cenário local de governança e integridade. Esse tipo de entrevista foi escolhido por sua flexibilidade, permitindo que os participantes compartilhassem percepções sobre desafios específicos, práticas vigentes e perspectivas sobre ética e transparência. Dos 19 gestores de controle interno do CISAN, sete aceitaram participar, representando uma

amostra de 37% e garantindo uma diversidade de opiniões sem comprometer a profundidade da análise.

Diretrizes éticas foram adotadas para proteger a confidencialidade dos participantes. Todos os gestores foram informados sobre os objetivos da pesquisa e assinaram um termo de consentimento, assegurando que suas identidades e informações seriam tratadas de maneira sigilosa. Para manter o anonimato, os municípios foram identificados com os códigos M1, M2, M3, M4, M5, M6 e M7. O município M1 serviu como caso piloto, o que ajudou a refinar o roteiro

de entrevista e a garantir uma coleta de dados mais precisa e consistente.

As entrevistas, realizadas entre fevereiro e maio de 2024 via Google Meet, tiveram duração média de 40 minutos cada. Foram gravadas e transcritas com o auxílio do software Transkriptor, e a transcrição foi revisada pelos pesquisadores para assegurar precisão e fidelidade às falas dos participantes. O roteiro incluiu tópicos como: i) Entendimento e Desafios na Promoção da Integridade; ii) Obstáculos Específicos; iii) Expectativas quanto aos Impactos de um Programa de Integridade; iv) Impactos na Relação com a Comunidade; v) Impactos Estruturais e Organizacionais; e, vi) Impactos a Longo Prazo.

Na segunda etapa, foram analisados documentos oficiais disponíveis nos portais de transparência dos municípios do CISAN, incluindo normativas de controle interno, relatórios de auditoria, códigos de ética e outros materiais relevantes para a governança pública. Os documentos selecionados abordavam temas como integridade, transparência e prestação de contas, servindo para complementar as informações das entrevistas e verificar a existência de diretrizes formais de integridade e ética pública.

Para análise dos dados qualitativos, foi aplicada a técnica de análise de conteúdo, com base nas orientações de Bardin (2016), utilizando o software ATLAS.ti. Inicialmente, os dados foram agrupados em categorias amplas, que foram refinadas conforme a

análise avançava, resultando em temas que possibilitaram a sistematização dos achados. Essa análise temática permitiu identificar padrões entre os municípios, bem como especificidades de cada um, revelando os principais desafios e práticas de governança no CISAN.

Por fim, a interpretação dos resultados foi realizada a partir de categorias definidas a posteriori, uma etapa essencial para captar as expectativas dos gestores em relação à integridade pública e aos fatores que influenciam a implementação dessas práticas nos municípios (Sampieri et al., 2013). Para reforçar a confiabilidade dos achados, aplicou-se a triangulação de dados, cruzando informações obtidas nas entrevistas e nos documentos. Esse procedimento possibilitou verificar a consistência entre as percepções dos gestores e as diretrizes documentais, identificando convergências e discrepâncias.

IV. APRESENTAÇÃO DOS RESULTADOS E DISCUSSÃO

Os dados da pesquisa foram tratados, analisados e organizados em categorias temáticas, agrupadas em dois eixos (categorias) principais: 1) Fatores Institucionais e 2) Expectativas dos Gestores de Controle Interno (GCI), conforme ilustrado na Figura 3.



Fonte: Elaborado pelos autores (2024).

Figura 3: Categorias Temáticas Extraídos das Entrevistas

Quanto à categoria fatores institucionais que influenciam a implementação de um programa de integridade nos municípios do CISAN, foram identificadas quatro subcategorias: capacidade administrativa, que diz respeito à habilidade dos

municípios em implementar e sustentar programas de integridade com os recursos humanos e financeiros disponíveis; estrutura organizacional, que envolve a adequação das estruturas internas para incorporar práticas de integridade de forma eficaz; cultura

organizacional, relacionada aos valores e práticas no ambiente de trabalho que podem facilitar ou dificultar a adoção do programa; e, por fim, a confiança pública, que reflete a percepção da população sobre a transparência e confiabilidade da administração pública.

Em relação à segunda categoria expectativas dos gestores de controle interno quanto aos impactos de um programa de integridade, também foram identificadas quatro subcategorias: aumento da transparência nas operações municipais; fortalecimento da governança, com a crença de que o programa contribuirá para uma gestão mais robusta e eficaz; melhoria da eficiência administrativa, com a expectativa de otimização dos processos e práticas de gestão; e, por último, comprometimento da liderança, visto como essencial para o sucesso da implementação do programa.

a) *Fatores Institucionais Que Influenciam a Implementação de um Programa de Integridade Nos Municípios do CISAN*

i. *Capacidade Administrativa*

Os Gestores de Controle Interno (GCI) dos municípios destacaram limitações financeiras e a escassez de pessoal capacitado para atuar nas áreas de controle e verificação dos processos administrativos. Por exemplo, o gestor do Município M2 enfatizou:

Bom, aqui no município, o principal problema são recursos capital humano, porque é um município pequeno, mas apenas uma pessoa, um funcionário, não tem condições de dar conta, de verificar tudo e qualquer processo, tudo e qualquer aspecto. [...] então nós precisaríamos ter alguns, alguns módulos, algumas pessoas responsáveis apenas por essas secretarias dentro da administração.

Esse sentimento também é corroborado pelo Município M4. Ele identifica a falta de recursos humanos capacitados como um dos maiores desafios na promoção da integridade:

O maior desafio é o humano. Acho que a gente precisa de pessoas capacitadas para estar na área. Infelizmente, por ser um município pequeno, existe muito aquela situação... Vou apresentar um exemplo. Os poucos no setor de tributos são uma pessoa que é formada em pedagogia e nem uma pessoa formada em... Sim, vocês contavam um exemplo da administração que tinha pelo menos uma base. E aí é mais a questão de recurso humano e tecnológico também. As pessoas têm que lidar com essa dificuldade de atender o que é solicitado.

Essa limitação não apenas sobrecarrega os profissionais existentes, mas também compromete a eficácia das práticas de integridade. A falta de treinamento específico para os servidores, mencionada pelo gestor do Município M6, evidencia a necessidade de investimento em capacitação.

Essa constatação confirma os achados de Barreto & Vieira (2021), que identificaram que a insuficiência de recursos técnicos e financeiros

compromete a efetividade dos programas de integridade pública no Brasil. Os autores destacam que, sem uma estrutura adequada, as iniciativas de integridade tendem a ser ineficazes, especialmente em municípios de pequeno porte.

De forma semelhante, Menezes et al. (2024) enfatizam que a falta de capacitação e de pessoal especializado nos municípios brasileiros dificulta a implementação de programas de integridade eficazes. A sobrecarga de trabalho dos gestores de controle interno, devido à escassez de pessoal, foi também identificada em nosso estudo, confirmando os desafios apontados pelos autores. Além disso, De Bona (2022), ao analisar sistemas de integridade em pequenas cidades de Santa Catarina, encontrou resultados similares, indicando que a capacidade administrativa limitada é um desafio recorrente em municípios de menor porte.

A integridade exige uma gestão eficiente e bem distribuída, baseada em uma estrutura que permita o acompanhamento constante e a avaliação dos riscos (IFAC & CIPFA, 2014; OCDE, 2018). Quando há falta de recursos humanos, tecnológicos e financeiros, como observado, a implementação de programas de integridade tende a ser menos efetiva, colocando em risco o cumprimento das diretrizes de transparência e prestação de contas.

Logo, nos municípios com uma estrutura administrativa mais integrada, apesar das limitações financeiras, como M1, há maior possibilidade de adaptação às exigências dos programas de integridade, o que se alinha com a necessidade de uma cultura de controle e supervisão constantes. Entretanto, os municípios com restrições financeiras e de pessoal, como M2 e M5, enfrentam barreiras significativas que dificultam não apenas a implementação, mas também a sustentabilidade a longo prazo dessas iniciativas.

ii. *Estrutura Organizacional*

A estrutura organizacional dos municípios influencia diretamente a implementação de programas de integridade. Enquanto alguns municípios, como o M1, possuem uma estrutura administrativa integrada que facilita a promoção da integridade, outros enfrentam desafios relacionados à fragmentação dos departamentos e centralização excessiva das decisões. O gestor do Município M5 destacou:

Na controladoria interna, não temos uma equipe; é só o controlador sozinho. Se eu tivesse uma equipe, poderia ter mais controle sobre algumas situações. Há coisas que acontecem e eu não fico sabendo. A falta de pessoal é um grande obstáculo.

O gestor do Município M7 destacou a importância de uma administração menos centralizada. Ele explicou que a excessiva dependência de um único gestor, sem delegação de responsabilidades, pode atrasar as decisões relacionadas à integridade:





Temos um prefeito que centraliza tudo. Embora ele entenda a importância da integridade, essa centralização impede que decisões sejam tomadas rapidamente, porque tudo passa por ele. Seria mais eficaz se houvesse uma melhor distribuição de funções entre os secretários e gestores.

Nesse sentido, o gestor do Município M4 menciona que a centralização das decisões no prefeito, que é administrador, tanto facilita quanto dificulta a promoção da integridade: "O prefeito é administrador. Isso influencia positivamente na questão de cobrar que as coisas aconteçam... Porém, isso também atrapalha um pouco, porque tudo acaba dependendo dele".

A centralização das decisões no prefeito, observada nos Municípios M4 e M7, pode atrasar a implementação de medidas de integridade e dificultar a delegação de responsabilidades, afetando a eficiência administrativa. Esses achados corroboram com os estudos de Leo W. J. C. Huberts & Six (2012), a qual enfatiza os desafios relacionados à centralização excessiva e fragmentação de departamentos influenciando a estrutura organizacional na implementação dos programas de integridade.

No caso do M5, a controladoria interna é composta por apenas uma pessoa, o que limita a capacidade de monitoramento e controle das atividades, dificultando a implementação eficaz dos programas de integridade, como também foi observado por De Bona (2022) em sua análise de pequenos municípios. A falta de pessoal na controladoria interna do M5, por exemplo, impede que o controle seja exercido de forma abrangente, o que cria lacunas na supervisão de processos críticos.

Nesse sentido, Hoekstra et al. (2023) também corroboram nossos resultados ao afirmarem que a estrutura organizacional desempenha um papel crucial na eficácia dos sistemas de integridade em governos locais. Por sua vez, De Bona (2021) destaca que a centralização das decisões no executivo municipal pode gerar atrasos e dificultar a implementação de medidas de integridade, confirmando as observações feitas pelos gestores dos Municípios M4 e M7.

Essa deficiência estrutural também tem impactos na impessoalidade, um dos princípios basilares da administração pública. A impessoalidade, prevista no art. 37 da Constituição Federal de 1988, requer que as ações da administração sejam guiadas por critérios técnicos e objetivos, e não por preferências ou influências pessoais. Sem uma estrutura organizacional clara, como descrito no relato do gestor de M3, pode favorecer práticas de favoritismo e decisões baseadas em interesses particulares, conflitando com o interesse público.

iii. *Cultura Organizacional*

A resistência cultural foi identificada como um desafio significativo. Funcionários com muitos anos de serviço demonstram dificuldades em se adaptar às novas exigências de transparência e legalidade. O

gestor do Município M2 apontou: "Temos aqui funcionários concursados há mais de 20 anos, que têm muitos vícios, e para conseguir quebrar esses vícios, esses paradigmas dessas pessoas, é muito complicado."

Esses achados confirmam os resultados de Menzel (2015), que ressalta que a cultura organizacional pode ser uma barreira significativa na promoção da ética e integridade no setor público. Além disso, práticas como o "jeitinho brasileiro", mencionadas pelo gestor do Município M5, revelam barreiras culturais profundas que podem comprometer a efetividade dos programas de integridade:

A resistência cultural é aquele famoso jeitinho. A gente, como técnico, eu, você, como grande contador, que sei que você é e pelo que a gente conversa, a gente passa muito pela questão do jeitinho a dar um jeitinho aqui, dá um jeitinho ali, mas de uma forma ou de outra a gente acaba às vezes caindo no jeitinho, mas depois o problema vem. E o problema não vem de imediato, ele vem depois de dois, três, quatro anos.

De acordo com De Graaf et al. (2018), a integridade não depende apenas da existência de normas e regulamentos, mas da aceitação e adoção dessas diretrizes por parte dos servidores públicos. A relutância em adotar práticas que exigem maior responsabilidade e transparência reflete uma cultura institucional que, muitas vezes, valoriza a flexibilidade informal em detrimento de regras estruturadas, um fenômeno comumente referido como o "jeitinho" brasileiro, que permanece uma barreira cultural significativa, conforme observado por alguns gestores de controle interno. Este comportamento informal, muito arraigado, enfraquece as tentativas de institucionalizar a integridade.

O gestor do Município M6 destacou que a resistência cultural está enraizada na falta de educação e conscientização sobre as normas de integridade. Ele observa que muitos funcionários não entendem a importância dessas práticas e veem as novas exigências como uma carga extra de trabalho: "Tem muita resistência aqui porque as pessoas não entendem o que é integridade. Elas acham que é só mais uma coisa para complicar o trabalho delas. Não há uma cultura de treinamento e de conscientização, então fica difícil mudar essa mentalidade".

O gestor do Município M7 mencionou que a resistência cultural também está presente, mas aponta que o maior desafio vem de uma cultura organizacional que privilegia as práticas informais e de favorecimento. Nesse contexto, Varas & Machuca (2021), também identificaram a resistência cultural como um obstáculo significativo ao analisar a implementação de sistemas de integridade no governo central do Chile.

Desta forma, os gestores de controle interno dos municípios entrevistados demonstram uma percepção unânime de que tais desafios são esperados

devido a vícios arraigados, resistências de funcionários mais antigos e pressões políticas. Esse comportamento se alinha com a ideia de que a cultura organizacional estabelecida exerce uma força inercial, tornando a implementação de novas políticas um desafio considerável (Hoekstra & Kaptein, 2021).

Por outro lado, os resultados refutam parcialmente a ideia sugerida por Leo W. J. C. Huberts & Six (2012) de que municípios menores podem ter maior facilidade na implementação de políticas de integridade devido à proximidade entre servidores e comunidade. Embora a comunicação possa ser mais direta em municípios pequenos, a resistência cultural permanece como um desafio significativo, independentemente do tamanho do município. A presença de práticas enraizadas, como o "jeitinho brasileiro", e a dificuldade em alterar comportamentos tradicionais indicam que a proximidade não é suficiente para superar barreiras culturais.

Nesse contexto, os gestores de controle internos foram unanimes quanto a necessidade de uma mudança gradual, apoiada por ações educativas e programas de capacitação, pode ajudar a modificar o comportamento dos funcionários e integrar uma nova cultura de governança ética e transparente. E como propõe a OCDE (2018), a promoção de uma cultura de integridade depende de treinamento contínuo, conscientização e um forte comprometimento da liderança. Essa mentalidade também é a base de construção de todo o processo de integridade do governo federal (CGU, 2021).

As tentativas de romper com práticas enraizadas e introduzir maior controle e transparência podem gerar fricções dentro da organização, especialmente em áreas onde os funcionários estão acostumados a operar com menor supervisão. Isso reforça a necessidade de um planejamento estratégico claro e de uma comunicação eficaz para garantir que os funcionários compreendam as razões e os benefícios das mudanças propostas (CGU, 2021; OCDE, 2018, 2022).

iv. *Comprometimento da Liderança*

O apoio político e o comprometimento da liderança emergiram como fatores determinantes para o sucesso na implementação dos programas de integridade, confirmado os estudos de Hoekstra & Kaptein (2021), que destacam que a liderança é fundamental para definir o tom ético da organização e influenciar positivamente a cultura de integridade. Nesse sentido, Gestores como o do Município M2 relataram uma relação positiva com o prefeito, facilitando a adoção de práticas de integridade:

Avalio de uma forma muito boa, porque quando faço algum questionamento, além de apontar no relatório, eu envio informações diretamente ao prefeito. [...] Ele sempre está apto a ouvir e corrigir toda e qualquer demanda. Então, ele

é uma pessoa que teme demais qualquer tipo de coisa errada.

Barreto & Vieira (2021) também ressaltam a importância do apoio da alta administração para a efetividade dos programas de integridade pública. Sem o comprometimento dos líderes, os programas correm o risco de se tornarem meramente formais, sem impacto real nas práticas institucionais. Essa perspectiva confirmada pela experiência do gestor do Município M2 também é confirmada pelo M3.

O gestor do Município M3 destacou que, apesar dos desafios, o apoio político recebido, incluindo a participação do gestor em eventos e cursos capacitativos, tem facilitado a promoção da integridade. Do mesmo modo, o gestor do Município M4 afirmou que o fato de o prefeito ser administrador facilita a cobrança e a implementação de práticas de integridade: "O prefeito é administrador. Isso influencia positivamente na cobrança para que as coisas aconteçam... Eu até costumo dizer que ele é quase o controle interno junto comigo." No entanto, ele também apontou que a centralização das decisões pode ser um obstáculo, pois muitas ações dependem da aprovação direta do prefeito, o que pode atrasar processos e reduzir a eficiência.

Por outro lado, o gestor do Município M6 observou que o apoio político no seu município é limitado, especialmente quando se trata de alocar recursos para implementar ações com tais. Ele apontou que, embora o prefeito apoie a ideia de transparência, muitas vezes as ações não recebem o financiamento necessário:

Existe um discurso de apoio à integridade, mas, na prática, falta investimento para implementar as ações. Muitas vezes, não temos recursos para colocar em prática o que seria necessário para garantir a transparência em todas as áreas.

Por sua vez, o gestor do Município M7 mencionou que o comprometimento da liderança é afetado por pressões políticas locais, o que pode interferir na eficácia das ações de integridade. Ele destacou que, embora o prefeito apoie a integridade em tese, a dinâmica política e as alianças locais podem dificultar a execução de ações que exigem mais rigor e controle.

Desta forma, a visão dos gestores municipais sobre o apoio da alta administração revela que, apesar de um aparente apoio para questões que envolvam a integridade e transparência pública, há preocupações quanto à efetividade e continuidade desse apoio. A centralização das decisões, as pressões políticas e econômicas, e a necessidade de um compromisso sustentado são desafios que podem afetar a implementação e a eficácia das políticas de integridade, o que acrescenta uma nuance aos achados de Menezes et al. (2023).





O envolvimento dos gestores em eventos e treinamentos de capacitação, como mencionado no M3, é uma prática positiva, mas a sustentabilidade desses esforços depende de uma mudança de cultura organizacional e do engajamento de todos os níveis hierárquicos, algo que a OCDE (2018) recomendam como essencial para a institucionalização de uma cultura ética.

Nessa conjuntura, o papel da liderança política é destacado pela CGU, (2021) no comprometimento da integridade pública. Nesse sentido, a liderança não apenas facilita a adesão dos servidores a uma postura ética escorreita, mas também reforça a importância da integridade como valor central nas práticas administrativas (Costa et al., 2022; Rodriguez, 2019).

Desta forma, embora o apoio da alta administração seja crucial para impulsionar as práticas de integridade como pontua Viol (2021), a excessiva dependência de uma única figura para a tomada de decisões pode retardar o progresso e comprometer a eficiência. Assim, o comprometimento da liderança deve ser entendido não apenas como a expressão de apoio formal, mas como uma participação ativa e contínua no desenvolvimento de uma cultura de integridade (Hoekstra et al., 2023; Leo W. J. C. Huberts & Six, 2012; Montfort et al., 2018).

b) Expectativas dos Gestores de Controle Interno Quanto Aos Impactos de um Programa de Integridade

i. Transparéncia

A transparéncia é um dos pilares centrais para a promoção da governança pública (CGU, 2021). Nesse sentido, os resultados mostram que a promoção da transparéncia é vista pelos gestores de controle interno (GCI) como um dos principais benefícios esperados com a implementação de programas de integridade nos municípios do CISAN. Essa expectativa é evidenciada nas falas dos entrevistados, que acreditam que tais programas podem aumentar a visibilidade das ações governamentais e fortalecer a confiança da população.

O gestor do Município M1 afirmou: "Acredito que a implementação de um programa de integridade pode trazer maior transparéncia para as atividades do município, permitindo que os cidadãos acompanhem em tempo real as ações e decisões tomadas. Isso gera mais confiança na administração pública".

Essa percepção está alinhada com os achados de Barreto & Vieira (2021), que destacam a transparéncia como um dos pilares fundamentais dos programas de integridade pública no Brasil. Segundo os autores, a promoção da transparéncia não apenas facilita o acesso à informação, mas também fortalece a *accountability* e a participação cidadã. Do mesmo modo, o gestor do M2 avaliou de forma muito positiva a

implantação de um programa de integridade no que diz respeito à melhoria da transparéncia:

A transparéncia, como eu já falei, melhorou demais nos últimos anos, porém, seria um mecanismo, uma ferramenta a mais para que seja ainda mais melhorada a situação. [...] Então, é uma ferramenta a mais que o município vai ter, para que a gente consiga ter melhor, mais honestidade, mais credibilidade de frente à população.

Essa visão corrobora o estudo de Viol (2021), que enfatiza o papel dos programas de integridade na construção de um ambiente administrativo mais transparente e confiável, reforçando a relação de confiança entre governo e sociedade. No entanto, a transparéncia vai além da simples divulgação de informações. Ela precisa ser acompanhada por mecanismos de prestação de contas e participação cidadã para garantir que as ações do governo sejam constantemente monitoradas e avaliadas pela sociedade (Bastida Albaladejo, 2019; A. F. Teixeira & Gomes, 2019; J. V. Teixeira & Ramos Lamenha, 2019).

Apesar disso, desafios relacionados à infraestrutura tecnológica que podem comprometer os mecanismos de transparéncia foram mencionados. O gestor do Município M6 destacou:

Atualmente, ainda faltam ferramentas e sistemas adequados para garantir total transparéncia. Com a implementação de um programa de integridade, a expectativa é que a gente consiga melhorar esse ponto e permitir que a população tenha acesso mais fácil e direto às informações do município.

Essa observação está em consonância com Menezes et al. (2023), que identificaram a falta de recursos tecnológicos como um obstáculo para a efetividade dos programas de integridade em municípios brasileiros. Os autores apontam que investimentos em tecnologia são essenciais para viabilizar a transparéncia e facilitar o acesso da população às informações governamentais. Além disso, Coelho et al. (2018); Teixeira; Gomes (2019) também destacam a necessidade de adaptar a comunicação governamental para que seja compreensível e acessível a todos os cidadãos.

A importância de canais de comunicação eficazes também foi ressaltada. O gestor do Município M2 mencionou: "Nós implantamos a ouvidoria há uns três anos e no início era muito difícil chegar a uma reclamação, alguma coisa, então nós conseguimos, através das redes sociais, divulgar que existe uma ouvidoria [...] A participação popular vem melhorando a cada dia."

Essa iniciativa reforça o que Varas & Machuca (2021) destacaram em seu estudo sobre a implementação de sistemas de integridade no governo chileno, enfatizando que a comunicação efetiva com a comunidade é crucial para promover a transparéncia e fortalecer a confiança pública. Afinal, a pluralidade de vozes no processo de governança fortalece o ambiente

de prestação de contas e estimula a administração pública a ser mais transparente e responsável (Buta & Teixeira, 2020; J. V. Teixeira & Ramos Lamenha, 2019; Zuccolotto et al., 2015). Essas iniciativas possibilitam controle social sobre as ações municipais.

Embora a transparência e a ética sejam fundamentais para uma administração pública saudável, como apontado por Varas & Machuca (2021) e Perlman et al. (2024), é ilusório acreditar que apenas um programa de integridade poderá transformar. A verdadeira transformação só ocorre quando há um compromisso forte da liderança, investimentos contínuos em capacitação e tecnologia e, principalmente, quando a cultura organizacional valoriza a ética e a responsabilidade.

ii. Redução de Desvios e Fortalecimento da Governança

Os GCIs expressaram expectativas positivas em relação ao potencial dos programas de integridade para reduzir desvios como corrupção e fraudes, fortalecendo assim a governança municipal. Conforme destacado por Iacovino; Barsanti; Cinquini (2017) e OCDE (2018), a governança pública eficiente depende da implementação de mecanismos de controle que garantam a transparência e a responsabilização, elementos essenciais para prevenir práticas antiéticas e promover a integridade nas instituições públicas.

Nessa perspectiva, o gestor do município M1 expressou a expectativa de que a implementação de um programa de integridade possa reduzir desvios, como corrupção e fraudes. Ele destacou que: "Acredito que um programa de integridade pode reduzir significativamente os desvios, como corrupção e fraudes, ao tornar os processos mais transparentes e supervisionados". Essa expectativa está alinhada com os achados de Hoekstra & Kaptein (2021), que argumentam que programas de integridade bem estruturados estabelecem normas e mecanismos preventivos que desestimulam práticas corruptas e promovem a ética organizacional.

O entrevistado do M2 afirmou que tal iniciativa serve como um controle preventivo contra desvios, fraudes e corrupção: "Sim, com certeza. Acredito que o programa de integridade, na verdade, é mais uma espécie de controle preventivo para que não chegue a acontecer esses desvios. Essa percepção confirma as conclusões de Leo W. J. C. Huberts & Six (2012), que destacam a importância de sistemas locais de integridade na prevenção de desvios éticos e fortalecimento da governança pública.

Contudo, preocupações sobre a possível complexidade burocrática foram levantadas. O gestor do Município M3 observou: "As pessoas que teriam que lidar com esse novo sistema, os servidores em específico, teriam que agora entender toda a normativa que ele traria e o que você teria que atender ali." Essa

preocupação reflete os desafios apontados por Menezes et al. (2024), que alertam para o risco de programas de integridade aumentarem a burocracia se não forem adequadamente planejados, podendo gerar resistência e comprometer sua efetividade.

O gestor do Município M5 compartilhou uma visão otimista, apesar dos possíveis desafios:

Um programa de integridade reduziria muito os desvios de integridade, como corrupção e fraudes. Acredito que poderia reduzir em até 80% ou mais esses desvios. O sistema garantiria que todos os processos seguissem as normas legais, eliminando muitas das oportunidades para irregularidades.

Essa perspectiva positiva reforça a importância dos programas de integridade como ferramentas eficazes na prevenção de práticas corruptas, conforme discutido por De Bona (2022) em seu estudo sobre sistemas de integridade em pequenas cidades brasileiras.

O gestor do Município M6 reforçou a ideia de que a implementação de um programa de integridade pode ajudar a diminuir os desvios de integridade, mas destacou que, para ser eficaz, deve haver uma forte supervisão e uma cultura de responsabilização dentro do governo municipal:

Um programa de integridade pode, sim, reduzir os desvios, desde que haja uma supervisão rigorosa. Mas, além disso, é fundamental criar uma cultura de responsabilização, para que todos saibam que suas ações serão acompanhadas de perto e qualquer irregularidade será punida.

Os resultados indicam que os gestores municipais concordam que a adoção de um programa de integridade tem o potencial de fortalecer a governança, ajudando a mitigar problemas de corrupção e fraudes. A criação de mecanismos robustos de controle e supervisão, juntamente com o incentivo a uma cultura de transparência e responsabilidade, é considerada fundamental para garantir que os procedimentos administrativos sejam conduzidos de acordo com princípios éticos e legais.

Contudo, foram levantadas preocupações quanto à complexidade burocrática e aos custos envolvidos na implementação, apontados como desafios consideráveis. Apesar dos benefícios significativos associados ao programa, a maioria dos gestores reconhece a necessidade de um planejamento estratégico, capacitação adequada dos servidores e o uso de ferramentas tecnológicas para evitar a sobrecarga dos sistemas atuais e assegurar a viabilidade do programa a longo prazo.

iii. Eficiência Administrativa

A eficiência operacional é um aspecto crucial que influencia diretamente a qualidade e a agilidade dos serviços prestados à população. Ao colaborar para promover processos mais claros, integrados e menos burocráticos, os programas de integridade ajudam a





estabelecer normas e procedimentos padronizados, reduzir redundâncias e assegurar que todos os funcionários estejam alinhados com os objetivos éticos e operacionais da organização.

Diante disso, o gestor entrevistado do M1 afirma que a expectativa é de processos mais eficientes e menos burocráticos. Ele destacou: "A integração dos sistemas e a clareza nas funções de cada setor podem resultar em processos mais eficientes, diminuindo a burocracia e agilizando os serviços prestados à população". Essa expectativa é suportada por Hoekstra et al. (2023), que apontam que sistemas de integridade bem implementados contribuem para a padronização de processos e melhoria da eficiência administrativa em governos locais.

O gestor do M2 também espera que a eficiência operacional do município melhore com a implementação de um programa de integridade:

Um departamento implantado, eu acredito que as pessoas vão ter mais preocupação e mais responsabilidade nas atividades, pensar um pouco em ética também, porque hoje a gente tem, como eu já lhe falei, vícios de pessoas que estão há muito tempo naquela função, vícios que você não consegue corrigir de uma hora para outra e às vezes nunca consegue corrigir.

Da mesma forma, o gestor do M3 acredita que um programa de integridade pode aumentar a eficiência operacional, aproximando a produtividade do setor público à do setor privado:

Um sistema de monitoramento, um sistema de integridade, faria com que se aproximasse mais da produtividade de uma empresa privada, porque você tem ali, você está sabendo aquilo que tem que fazer, tem aquelas normas que tem que seguir, tem alguém que está ali monitorando.

Essa comparação com o setor privado destaca a busca por eficiência e produtividade, aspectos também discutidos por Menezes et al. (2023), que identificam a eficiência administrativa como um benefício potencial dos programas de integridade em municípios.

No Município M6, o gestor apontou que a eficiência administrativa depende de uma melhor integração dos departamentos e da modernização dos processos, algo que pode ser facilitado por um programa de integridade:

Atualmente, os nossos processos ainda são fragmentados, e isso acaba gerando atrasos e ineficiências. A implementação de um programa de integridade pode ajudar a padronizar os procedimentos e reduzir a redundância, o que tornaria a administração mais eficiente.

O gestor do Município M7 compartilha uma expectativa semelhante, acreditando que a transparência e os controles trazidos por um programa de integridade podem resultar em maior eficiência administrativa, desde que a implementação seja bem gerenciada.

Quanto à eficiência operacional, o gestor do Município M5 anseia que um programa de integridade contribua para a melhoria dos processos administrativos. Ele menciona que espera que o programa influencie positivamente a eficiência operacional do município:

O programa de integridade acabaria com a questão de processos feitos de trás para frente, onde as despesas são realizadas antes de seguir o rito processual correto. Com um programa de integridade, haveria um planejamento adequado das ações, eliminando os vícios e garantindo que todas as etapas sejam seguidas corretamente.

No entanto, a resistência interna foi identificada como um desafio. O gestor do Município M4 acredita que a resistência interna será um desafio, destacando que a cultura organizacional enraizada e a falta de preparação dos funcionários para lidar com novos processos podem ser grandes barreiras. Ele mencionou:

Temos aqui funcionários que fazem as coisas de um jeito há muitos anos, e qualquer mudança vai enfrentar resistência. Acredito que o programa de integridade será importante, mas teremos que trabalhar muito para convencer as pessoas de que essas mudanças são para o bem.

O gestor do M7 acrescenta que a resistência pode ser ainda maior em um ambiente onde os funcionários estão habituados a lidar com processos informais, mas destaca que, com treinamento adequado, esse desafio pode ser superado:

Vai haver resistência, principalmente por causa da informalidade que já faz parte da cultura aqui. Mas, com um bom treinamento e uma comunicação clara, acredito que podemos superar essas dificuldades e implementar o programa com sucesso.

Esse mesmo entendimento é apresentado pelo gestor do M3, que afirma que qualquer mudança nos hábitos das pessoas apresentará resistência:

Sempre tudo vai apresentar resistência, uma mudança principalmente nessa questão de promover a integridade. Seriam mais cobranças, seria direcionar o servidor a trabalhar de determinada forma, de mostrar a ele que você tem que seguir esse caminho, não é só do jeito que você quer, é uma coisa pública.

Essa resistência cultural é um desafio reconhecido por Menzel (2015), que enfatiza a importância de gerenciar a mudança organizacional e promover uma cultura ética para o sucesso dos programas de integridade. Essa percepção indica que ações devem ser tomadas para combater essa resistência, por meio de uma comunicação clara sobre os benefícios do programa de integridade, treinamento adequado e o envolvimento ativo de todos os níveis da administração.

Ademais, nítida é a visão otimista dos GCIs, embora bem-intencionada, deixam de lado o fato de que para garantir que esses programas sejam

implementados e sustentados de forma eficaz, o apoio externo será crucial, como já destacado por (Barreto; Vieira (2021); De Bona (2022). Afinal, os programas de integridade podem ser um passo na direção certa, mas não são uma solução mágica para os problemas estruturais de ineficiência e má gestão enraizados há anos.

iv. Confiança Pública

A confiança pública nas instituições municipais é um pilar fundamental para a governança eficaz e legítima. É um dos principais pilares que sustentam uma governança eficaz e legítima, como destacado (Bastida Albaladejo (2019); Beshi; Kaur (2020). Nesse sentido, a expectativa de que os programas de integridade fortalecerão a confiança pública nas instituições municipais foi unânime entre os gestores entrevistados.

O gestor do Município M2 afirmou: "Sim, com certeza, porque a transparência faz com que as pessoas, o povo, consigam chegar mais perto da administração [...] o gestor é sério, ele está fazendo um trabalho sério, correto, honesto, e isso impõe respeito."

Essa percepção está em consonância com Barreto & Vieira (2021), que apontam que a transparência e a integridade nas práticas administrativas aumentam a credibilidade da administração pública e fortalecem a confiança dos cidadãos. Em complemento, Teixeira; Gomes (2019); Coelho et al., (2018), a governança pública precisa ser construída sobre a base da responsabilidade e da prestação de contas, para que a administração seja vista como um ator confiável e legítimo pela sociedade.

O gestor do Município M5 destacou:

Um programa de integridade pode e deve fortalecer a confiança da população. Se a gente divulgar o programa e a população entender que ele garante que todos os processos são realizados com qualidade e transparência, isso politicamente seria muito positivo para o prefeito e tecnicamente importante para a administração.

Essa visão confirma os achados de Amorim & Oliveira (2022), que ressaltam o papel da integridade na governança pública brasileira como fundamental para a construção de confiança nas instituições. Nesse contexto, o gestor do Município M6 acrescentou que a transparência e a clareza nas ações governamentais são fundamentais para restaurar a confiança do público em uma administração que, historicamente, tem enfrentado dificuldades de credibilidade: "Aqui no município, já tivemos problemas com a confiança pública. Um programa de integridade pode mostrar que as coisas estão sendo feitas corretamente e, com isso, ajudar a reconstruir a credibilidade da administração". Essa expectativa de reconstrução da confiança pública por meio da integridade reforça as conclusões de De Graaf et al. (2018), que sustentam que a promoção da integridade e a redução de violações éticas nas

administrações públicas resultam em maior confiança dos cidadãos nas instituições governamentais.

Essas percepções indicam uma expectativa clara de que a transparência e a responsabilidade são vistas como elementos-chave para aumentar a credibilidade e o respeito do público em relação à administração pública, e para fortalecer a confiança da população na gestão municipal. Isso quer dizer que a confiança é construída ao longo do tempo, com base na percepção de que as instituições não apenas adotam práticas éticas, mas também garantem a responsabilização em casos de desvios.

De tal modo, a transparência deve vir acompanhada de uma prestação de contas contínua e efetiva penalização em casos de descumprimento (Said et al., 2020). Sem essas garantias, a população pode perceber a transparência como algo superficial, resultando em um impacto limitado na confiança pública. Apesar disso, necessário considerar que confiança pública não é garantida apenas pela ética. Como apontam Teixeira; Gomes (2019), a confiança pública também depende de outros fatores, como a eficácia dos serviços prestados, a capacidade de responder às demandas da população e a coerência entre discurso e prática. Se a administração falha nesses aspectos a simples adoção de práticas éticas pode não ser suficiente para sustentar a confiança a longo prazo.

Quando a população entende como os mecanismos de transparência e integridade funcionam, ela tende a ser mais engajada e a confiar mais nas instituições municipais (Matias-Pereira, 2022). Deste modo, é preciso compreender que a confiança da população nesses municípios, não dependente apenas de transparência e monitoramento, mas, sobretudo, do compromisso contínuo com a prestação de contas a sociedade, a ética, a eficiência e, acima de tudo, a consistência entre o discurso e as ações governamentais.

V. PROPOSTA DO PROGRAMA DE INTEGRIDADE

A partir dos resultados obtidos na pesquisa e com base nas dificuldades relatadas pelos gestores de controle interno, propomos a implementação de um Programa de Integridade que se adapta às realidades institucionais e operacionais dos municípios que integram o Consórcio Intermunicipal do Semiárido Nordeste II da Bahia (CISAN), estruturado em oito etapas: (1) Comprometimento da liderança; (2) Diagnóstico inicial e mapeamento de riscos; (3) Definição de estruturas de governança e controle; (4) Capacitação dos servidores; (5) Implementação e aprimoramento de ferramentas tecnológicas para transparência; (6) Engajamento e participação da comunidade; (7) Fortalecimento da estrutura

organizacional; e (8) Plano de monitoramento e avaliação contínua.

O programa foi estruturado em oito etapas, que abordam desde o diagnóstico inicial até o monitoramento contínuo, permitindo que os municípios

possam adaptar as ações à medida que implementam práticas de integridade e conformidade, conforme recomenda Hoekstra, Huberts, van Montfort (2023). A seguir, o framework detalhado das etapas da proposta.



Fonte: Elaborado pelos autores (2024)

Figura 4: Framework da Proposta

A proposta foi desenvolvida para fortalecer a integridade e governança dos municípios de maneira mais eficiente. O programa oferece uma abordagem clara e simplificada, mas em conformidade com as diretrizes da OCDE e da CGU. Assim, busca-se otimizar a administração desses municípios, garantindo mais transparência e eficiência no uso dos recursos públicos, além de fortalecer a confiança nas ações dos governos municipais.

a) Comprometimento da Liderança

A primeira etapa do programa de integridade foca no comprometimento da liderança municipal. Essa etapa é essencial para o sucesso de qualquer iniciativa de integridade, uma vez que a liderança exerce influência direta sobre a cultura organizacional e o cumprimento das normas (Hoekstra & Kaptein, 2021; OCDE, 2018). Ela tem como objetivo garantir que os líderes políticos e gestores municipais, incluindo prefeitos e secretários, estejam engajados e comprometidos com os princípios de integridade, transparência e ética pública.

b) Diagnóstico Inicial e Mapeamento de Riscos

A segunda etapa do programa de integridade consiste em realizar um diagnóstico detalhado para identificar os principais riscos institucionais e áreas críticas suscetíveis a desvios de conduta e ineficiências administrativas. Segundo Barreto; Vieira (2021), a análise de riscos é fundamental em programas de integridade, pois permite uma abordagem proativa para

mitigar vulnerabilidades. O objetivo é mapear as áreas mais vulneráveis, bem como avaliar limitações de recursos humanos, tecnológicos e financeiros. Para isso, serão empregadas ferramentas de gestão de riscos conforme o Decreto nº 9.203/2017, incluindo matrizes de risco para classificar áreas conforme seu grau de exposição.

c) Definição de Estruturas de Governança e Controle

A terceira etapa do programa de integridade foca na criação e fortalecimento das estruturas de governança e controle nos municípios do CISAN, com destaque para a criação de um Comitê de Gestão da Integridade e o fortalecimento das Controladorias Municipais, com participação do Consorcio em sua estrutura de gestão. O objetivo é estabelecer mecanismos eficazes para coordenar ações de integridade e supervisionar a execução de políticas públicas, garantindo a conformidade com padrões éticos e legais, como sugerido pela OCDE (2022).

O comitê, instituído por decreto do Poder Executivo de cada município, deverá atuar como a principal instância de coordenação do programa. As Controladorias Municipais terão um papel central na fiscalização e auditoria dos processos administrativos, assegurando o cumprimento das práticas de integridade. Barreto; Vieira (2021) e De Bona (2022) destacam que a criação de estruturas organizadas de controle interno é essencial para a eficácia de qualquer programa de integridade.

d) Capacitação dos Servidores

A terceira etapa do programa de integridade é dedicada à capacitação contínua dos servidores municipais. O objetivo é garantir que os funcionários públicos estejam plenamente preparados para aplicar os princípios de integridade, transparência e conformidade em suas atividades diárias.

O Comitê gestor deverá elaborar plano de capacitação, que incluirá módulos teóricos e práticos sobre temas como ética, compliance, auditoria e governança pública, conforme recomendado por OCDE (2022). O plano é adaptado às necessidades específicas dos municípios do CISAN, garantindo que todos os níveis da administração sejam contemplados.

e) Implementação e Aprimoramento de Ferramentas Tecnológicas para Transparéncia

A quinta etapa do programa de integridade envolve a implementação e aprimoramento de ferramentas tecnológicas destinadas a aumentar a transparéncia das administrações municipais. O aperfeiçoamento das ferramentas digitais, como sites, redes sociais e aplicativos são fundamentais para garantir que a população tenha acesso facilitado às informações sobre as ações da administração municipal.

As informações disponibilizadas incluirão gastos públicos, processos licitatórios, contratos firmados, execução orçamentária e relatórios de auditoria, conforme recomendado pela Lei de Acesso à Informação (LAI). Deve ser assegurado que os dados sejam organizados de maneira clara e compreensível, como sugere (Cavalcante Forte, 2020).

f) Engajamento e Participação da Comunidade

A sexta etapa do programa de integridade visa promover o engajamento ativo da comunidade no acompanhamento e fiscalização das ações da administração pública. Como sugere a OCDE (2018), o envolvimento da sociedade é fundamental para fortalecer a governança pública e garantir que as políticas de integridade sejam efetivas e transparentes. Por isso, o programa deverá contemplar mecanismos que facilitem o acesso à informação e permitam que a população interfira diretamente nos processos decisórios e na fiscalização da gestão pública (Di Marco & Terci, 2022; Hoekstra et al., 2023; Sell et al., 2018).

g) Fortalecimento da Estrutura Organizacional

A sétima etapa do programa de integridade será focada no fortalecimento da estrutura organizacional dos municípios do CISAN. Conforme apontado por Hoekstra; Kaptein (2021), uma estrutura organizacional robusta e bem delineada é fundamental para a implementação eficaz de políticas de governança e integridade.

Nesse sentido, essa mudança inclui a reestruturação das leis municipais que versam sobre a estrutura administrativa do Município, visando, redesenhar para permitir a descentralização de funções, a melhoria dos processos internos e a integração entre diferentes setores da administração municipal. O objetivo é reorganizar e otimizar as estruturas administrativas para garantir que as práticas de integridade, transparéncia e controle sejam implementadas de forma eficiente e integrada.

h) Plano de Monitoramento e Avaliação Contínua

A oitava e última etapa do programa de integridade será a criação de um plano de monitoramento e avaliação contínua. Como indicado pela OCDE (2018) a avaliação contínua é essencial para assegurar a eficácia e a sustentabilidade dos programas de integridade. O monitoramento permitirá o acompanhamento em tempo real das atividades do programa, enquanto a avaliação medirá o impacto das ações implementadas, proporcionando dados concretos para ajustes necessários ao longo do tempo.

Serão estabelecidos indicadores de desempenho específicos para avaliar as diversas dimensões do programa de integridade, incluindo transparéncia, eficiência, conformidade e participação cidadã. Esses indicadores serão desenvolvidos com base em métricas sugeridas pela OCDE (2018) e pela CGU (2021) adaptados ao contexto, como o nível de transparéncia dos processos administrativos e da participação social.

VI. CONCLUSÃO

Este estudo teve como objetivo central propor um programa de integridade adaptado às particularidades e capacidades institucionais dos municípios integrantes do Consórcio Intermunicipal do Semiárido Nordeste II da Bahia (CISAN). Para isso, foram considerados os seguintes objetivos específicos: i) investigar os fatores institucionais que influenciam a implementação de um programa de integridade nos municípios do CISAN; e ii) examinar as expectativas dos gestores de controle interno quanto aos impactos de um programa de integridade na governança municipal.

Os resultados indicaram que a capacidade administrativa limitada, caracterizada pela escassez de recursos humanos qualificados e infraestrutura tecnológica insuficiente, é um obstáculo significativo à implementação eficaz de programas de integridade. Além disso, a estrutura organizacional dos municípios, marcada pela centralização excessiva das decisões e fragmentação dos departamentos, dificulta a coordenação interna e compromete a eficiência administrativa. A cultura organizacional revelou-se um desafio, com resistência interna por parte de funcionários habituados a práticas tradicionais e informais. O comprometimento da liderança emergiu

como um fator crítico, onde o apoio das lideranças políticas é essencial, mas pode ser limitado por pressões políticas locais.

Em relação às expectativas dos GCIs, houve consenso quanto aos impactos positivos esperados com a implementação dos programas de integridade, destacando-se o aumento da transparéncia, o fortalecimento da governança para reduzir desvios de integridade, a melhoria da eficiência administrativa e o fortalecimento da confiança pública nas instituições municipais. No entanto, preocupações sobre a possível complexidade burocrática e resistência interna também foram expressas.

O estudo nos revela que, a implementação de programas de integridade, por si só, não é uma solução isolada para os problemas estruturais que afetam a gestão pública desses municípios. Sua eficácia depende da superação de barreiras culturais e resistências internas, somados a investimentos contínuos em tecnologia e, sobretudo, do envolvimento de todos os atores envolvidos. Sem uma transformação mais profunda da cultura organizacional e o comprometimento de longo prazo da liderança política, há o risco de que esses programas se tornem meramente simbólicos, sem gerar os resultados desejados.

Apesar disso, é necessário destacar que a proposta deste estudo contém limitações. Inicialmente destaca-se o fato de a pesquisa ter sido conduzida em um contexto geográfico específico, abrangendo apenas os municípios do CISAN. Isso limita a generalização dos resultados para outros contextos regionais ou nacionais. Além disso, a abordagem qualitativa adotada, embora adequada para explorar em profundidade as percepções dos GCIs, não permite inferir relações causais ou quantificar a extensão dos desafios identificados.

Outra limitação refere-se ao possível viés dos entrevistados. Como gestores de controle interno dos municípios, os participantes podem ter apresentado percepções influenciadas por suas posições profissionais ou interesses institucionais, o que pode ter afetado a objetividade das respostas. A ausência de perspectivas de outros atores, como Prefeitos e secretários municipais, servidores de outras áreas e membros da comunidade, também restringe a abrangência da análise.

No entanto, acredita-se que este estudo contribui para a área de conhecimento ao fornecer insights específicos sobre os desafios e expectativas relacionados à implementação de programas de integridade em municípios de pequeno porte no contexto brasileiro. Teoricamente, avança a compreensão sobre como fatores institucionais, como capacidade administrativa, estrutura e cultura organizacional, e comprometimento da liderança,

afetam a promoção da integridade pública nos municípios, complementando a literatura existente que se concentra principalmente em níveis governamentais da União Federal e Estado.

Para pesquisas futuras, sugere-se realizar estudos em municípios de outras regiões ou com características socioeconômicas distintas, para verificar se os desafios e expectativas identificados são comuns ou específicos ao contexto do CISAN. E ainda, incluir a visão de outros atores, como prefeitos, secretários municipais, servidores de diferentes níveis hierárquicos e membros da sociedade civil, para obter uma compreensão mais abrangente e multifacetada das dinâmicas envolvidas.

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Bridging Theory and Practice: University Extension and Community Engagement in the Rondon Project

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Abstract- The Rondon Project, an initiative by the Brazilian Federal Government in collaboration with Higher Education Institutions, promotes actions to foster the development of cities and communities across Brazil. The project aims to support local and sustainable development and enhance citizenship among participants through socially focused projects. Key objectives include contributing to the civic education of university students, integrating them into national development through participatory actions, and fostering a sense of social responsibility toward citizenship, development, and national interests. The Federal University of Ouro Preto sent a team of 8 students and 2 professors to Japonvar, Minas Gerais, Brazil. This report focuses on workshops from the "Labor" axis. Methodologies included multimedia presentations, discussion circles, interactive activities, music, posters, and flyers, aimed at creating knowledge multipliers. The actions developed significantly contributed to the economic development and quality of life of the population involved in the operation.

Keywords: *rondon project, university extension, community development, social responsibility, knowledge multipliers.*

GJHSS-H Classification: LCC: LC237



BRIDGING THEORY AND PRACTICE IN UNIVERSITY EXTENSION AND COMMUNITY ENGAGEMENT IN THE RONDON PROJECT

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Bridging Theory and Practice: University Extension and Community Engagement in the Rondon Project

Felipe de Campos Loch ^a, Daniela Antunes Lessa ^a, Ana Karolina Rocha Rezende ^b, André Mendonça Carvalho ^c, Bruna Magalhães D'Angelo Freitas ^d, Camila Portruneli ^e, Carlos Henrique Gomes Silva ^x, Jhonatan Pereira Dornelas Borges ^v, Thalita Emanuelli de Paula Monge ^e & Vinicius Luiz Miranda ^f

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I. INTRODUCTION

The Rondon Project was initiated during the era of military rule in Brazil and officially launched under President Costa e Silva's administration (1967-1969). It was named in tribute to Marshal Cândido Mariano da Silva Rondon, a military figure known for his humanistic approach and advocacy for the rights of Brazil's indigenous populations (ROTHER, 2019; BRASIL, 2023).

The project's first operation, known as Operation Zero, commenced in July 1967 and spanned 28 days. This initial mission involved 30 students and 2 professors from the former University of the State of Guanabara. The operation was conducted in remote areas of the Amazon, where the focus was on conducting research, gathering data, and providing medical assistance (SANTOS, 2013; MUNDO RONDON, 2014).

The Rondon Project was designed with two primary goals: to lessen regional and social inequalities across the country and to engage young people by involving them in national development, thereby fostering a sense of purpose and contributing to the nation's progress (GONÇALVES, 2017). However, in 1989, the project was terminated by the Federal Government (VIRGOLIN and KRUG, 2011).

It was only in 2004 that the Rondon Project was revived after a proposal from the National Union of Students (UNE). The project has been in continuous operation ever since, and it continues to provide services benefiting municipalities in various states of Brazil. The priority regions for action are those with low Human Development Index (HDI) and social exclusion, as well as isolated areas of the national territory that require greater access to goods and services. For this reason, the Strategic Guideline of the Rondon Project prioritizes the northern and northeastern regions of the country (VIRGOLIN and KRUG, 2011; BRASIL, 2023).

According to Brasil (2023), the program involves university professors and students from diverse academic disciplines working together to develop

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solutions that address the unique needs of local communities. Currently, the Rondon Project is an initiative of the Federal Government coordinated by the Ministry of Defense. Its main objectives are to facilitate the involvement of university students in activities that promote sustainable development and citizenship, while also contributing to the improvement of quality of life in the communities that host them.

The extension activities conducted by students as part of the Rondon Project align with the Brazilian University Extension Policy, which seeks to foster transformative interactions between the university and other societal sectors. These activities aim to develop various human, ethical, economic, cultural, and social dimensions (BRASIL, 2023).

The Rondon Project is distinguished by its voluntary nature, targeting specific regions of Brazil during the students' vacation periods. Each operation lasts two weeks, with each municipality hosting two teams from different universities. These teams are dedicated to educational activities that address the actual needs of the communities they serve (BRASIL, 2023).

Furthermore, the Rondon Project underscores the value of teamwork, promoting a holistic understanding of individuals as multidimensional beings-encompassing physical, psychological, social, and spiritual dimensions, and living within families and communities. This initiative also provides students with practical opportunities to apply their academic knowledge, enhance communication skills with the local population, and facilitate knowledge exchange.

This article aims to report the experience of students and professors from the Federal University of Ouro Preto (UFOP) during their participation in a Rondon Project operation in the municipality of Japonvar, in the state of Minas Gerais, Brazil, highlighting the relevance of this initiative in promoting citizenship.

II. OBJECTIVES

The main objectives of the project include contributing to the social formation of university students as citizens and integrating them into the country's national development through participatory actions concerning the realities of the country. It also aims to instill in Brazilian university students a sense of collective social responsibility in favor of citizenship, development, and the defense of national interests.

The Rondon Project aims to promote interaction and knowledge sharing between university students, professors, and the community; to disseminate learning through workshops designed to meet the demands and specificities of the region, which were developed under the "work" axis, allowing students to creatively and

practically apply the technical knowledge acquired at the university.

In addition, the project aims to contribute to improving the quality of life of the residents of the community where the project will be developed. As stated in Article 3 of the Brazilian Federal Constitution of 1988, the project aims to "eradicate poverty and marginalization and reduce social and regional inequalities."

III. METHODOLOGY

a) Stages of the Rondon Project

According to Brasil (2023), the Rondon Project followed these stages:

1. *Planning:* In this phase, a demographic and socioeconomic survey of the project's priority areas was conducted, based on statistical data from official sources, both governmental and non-governmental. During this stage, the state of Minas Gerais was selected, and the potential cities of interest were identified.
2. *Initial Contact:* Contacts were established with state and municipal government bodies, regional associations, and military units, which served as support for the operation in the determined regions.
3. *Recognition Phase:* Cooperation agreements were accepted through negotiations with state and municipal government structures. This involved visits, presentations, and conferences.
4. *Launch of "Onça Cabocla" Operation:* An event was held to celebrate the cooperation agreements and the work plan, which had been discussed with the state and municipal governments in the previous phases.
5. *Publication of the Public Notice:* A public notice regulating the participation of Higher Education Institutions (HEIs) in the operation was published in the Official Gazette of the Union (DOU). It outlined the municipalities, the planned actions, the activity schedule, and the conditions and obligations that HEIs had to follow to participate in Onça Cabocla Operation.
6. *Preparation and Submission of Work Proposals:* At this stage, HEI professors developed a work proposal and submitted it for evaluation by the Ministry of Defense (MD). Studies were conducted, and a socioeconomic diagnosis of the state and the cities of interest was prepared. Based on this diagnosis, proposals for workshops and activities were developed to improve the lives of the selected communities and reduce social inequality.
7. *Selection of Work Proposals:* The merit, relevance, and feasibility of the work proposals from each HEI

were evaluated. These proposals were submitted to the Rondon Project Proposal Evaluation Committee (CAPP) and selected according to the criteria established in the public notice. In the final selection results, the MD indicates two teams from different HEIs to work in each city of interest. One team from Group "A" focuses on the themes of culture, human rights, justice, education, and health. The other team, from Group "B," is responsible for working on the themes of communication, labor, environment, technology, and production.

8. *Preliminary Visit:* Coordinating professors from the selected HEIs traveled to the municipalities to adjust the work proposals in collaboration with local authorities and community leaders. They also coordinated the logistics and infrastructure for the stay of the Rondon participants, including transportation, accommodation, meals, and the execution of the workshops.
9. *Preparation of Actions:* After the selection, the HEIs formed teams consisting of 2 professors and 8 students, ensuring a multidisciplinary approach to the execution of the various planned activities. Initially, a careful assessment of the specific demands of the municipality selected for the project was conducted. This comprehensive analysis allowed for the identification of the main needs and challenges faced by the community, as well as establishing a solid foundation for intervention. Alternatives for intervention were studied, considering the identified demands, the feasibility of the proposed solutions, and the potential positive impact on the community. This detailed study process allowed for the selection of the most appropriate and effective strategies to meet local needs.
10. *Ongoing Operation:* Teams of Rondon participants were sent to the municipalities to carry out the actions of the Rondon Project. Each city received two teams from different HEIs, each consisting of 8 students and 2 professors, along with an army sergeant, totaling a team of 21 members.

b) About the Municipality

The cities of interest for the "Onça Cabocla" Operation of Rondon Project, in the state of Minas Gerais (MG), as indicated by the MD, were: Brasília de Minas, Coração de Jesus, Glauçilândia, Guaraciama, Itacambira, Japonvar, Jequitáí, Juramento, Olhos D'Água, São João da Lagoa, São João da Ponte, and São João do Pacuí. The team from the Federal University of Ouro Preto (UFOP) was selected to work in Japonvar (MG).

Japonvar is a municipality located in the northern region of the state of Minas Gerais, Brazil. It is situated in the North of Minas mesoregion and is part

of the Montes Claros microregion. The city is approximately 470 km from the state capital, Belo Horizonte, and about 60 km from Montes Claros, one of the main urban centers in northern Minas Gerais.

The municipality of Japonvar is located in a transition zone between the Cerrado and Caatinga, two of Brazil's main biomes. This location gives the city significant ecological diversity, with natural features that reflect both the semi-arid climate and the typical Cerrado of Central Brazil. The transition between these two biomes in Japonvar provides a unique landscape, with a rich diversity of flora that includes species such as the pequi tree, cagaita, buriti, and several other native plants that are of great importance to the local economy and the conservation of biodiversity.

According to recent estimates by the Brazilian Institute of Geography and Statistics (IBGE), the population of Japonvar is around 8,298 inhabitants. The municipality, according to IBGE data (2010), has a rural population of 5,248 inhabitants and an urban population of 3,050 inhabitants. The city is characterized by a predominantly rural demographic profile, with a significant portion of its population living in rural areas and engaged in agricultural activities. The percentage of those employed in the agricultural sector is 52.41%, in the services sector is 19.98%, and in commerce is 11.92% (Atlas of Human Development in Brazil, 2023).

According to the Atlas of Human Development in Brazil (2023), the municipality of Japonvar has an HDI (2010) of 0.60. The percentage of people registered in the Unified Registry without adequate sanitation in 2017 was 25.89%, and without adequate water supply in 2017 was 50.10%. According to IBGE (2010), the percentage of those vulnerable to poverty is 65.15%.

c) UFOP in the Rondon Project

In the work carried out in Japonvar, MG, the activities of group "A" were developed by the team from the Faminas University Center. The team from the Federal University of Ouro Preto (UFOP) carried out activities that covered the proposals of group "B" actions established by the Rondon Project, which focused on the areas of communication, labor, environment, technology, and production. This article presents the actions related to the "labor" area.

The Faminas team also included eight students: one from the Psychology program, six from the Medicine program, and one from the Veterinary Medicine program. Group A had two professors, one from the Veterinary Medicine program and another from the Law program.

Eight undergraduate students from UFOP participated in this operation, coming from various programs: one from the Law program, one from Environmental Engineering, one from Civil Engineering, two from Urban Engineering, one from Pharmacy, one from Nutrition, and one from Tourism. The team also

included two professors from the Civil Engineering program, who supervised the activities and assisted the students in developing practices for the community.

In addition to the professors and students, the team in Japonvar (MG) included an army sergeant, whose responsibilities included ensuring safety and assisting participants in navigating the city. The team was composed of 21 members.

The activities of the Onça Cabocla Operation of Rondon Project were carried out between January 11 and 28, 2024, with actions focused on the areas of communication, labor, environment, technology, and production. The target audience included children and adolescents; adults and the elderly; municipal councilors and civil society organizations; public school teachers; public servants; rural producers; and the general population.

As part of the methodological strategy, a multiplier training program was conducted to promote participation and social engagement to influence and adopt habits and behaviors that would contribute to improving the quality of life of the population. To prepare the proposed activities, meetings were held with the Rondon team, during which the educational materials to be used were discussed and planned. During the operation, various activities were conducted, including:

- Meetings for planning, discussion, and evaluation before, during, and after the activities.
- Lectures covering topics related to the activities.
- Debates involving the audience, providing a space for discussions and identifying activities and work strategies.
- Practical demonstrations with specific educational materials, used in discussion and reflection processes.
- Screening of videos and films related to the topics covered.
- Discussion groups and workshops, including plays, games, readings, and recreational activities, tailored to the needs of the activities.
- Experiences and sharing of personal stories.
- Creation of educational materials and community projects as part of the teaching-learning process.
- Photographic and video documentation of the activities, after obtaining authorization and consent from the participants.

IV. RESULTS

a) Actions Developed in the "Labor" Axis

The Rondon participants were welcomed by municipal employees upon their arrival in Japonvar, MS. The team was accommodated in a local municipal elementary school. After their arrival, the lodging was organized. On the second day, a fair was held in a city square to publicize the actions.

The actions developed by the UFOP team in the "Labor" axis, which is part of Group "B" of the Rondon Project's actions, are described below. The workshops were designed to develop practical skills, both for students and community members, through training in areas such as entrepreneurship, agriculture, crafts, technology, and others. Moreover, the goal was to empower local communities by providing practices through which residents could generate income, improve their living conditions, and acquire skills that allow them to become more self-sufficient.

b) Practical Construction Course

It is often observed that people without much training intuitively perform tasks related to civil construction, and as a result, the quality of the construction can be compromised.

The main objective of this action was to train the population with basic concepts of civil engineering. In this workshop, topics such as workplace safety and best practices in civil construction were presented.

The "Practical Construction Course" workshop was held at a municipal school in Japonvar, MS. In addition to discussing the topic, educational materials were distributed to the participants.

c) Wall Painting Course

Painting is a crucial step that can significantly influence the aesthetics and value of properties. The workshop titled "Wall Painting Course" was held at a university center in Japonvar (MG) and focused on training construction workers.

The activity was structured to provide both theoretical and practical knowledge about the complete wall painting process, from selecting and calculating the necessary materials, preparing the area to be painted, to post-painting cleaning and maintenance techniques. This comprehensive approach aimed not only to teach painting techniques but also to ensure that participants understand the importance of preparation and maintenance to guarantee a high-quality and long-lasting finish.

The expected return for the community is the strengthening of the local economy through professional qualification. With better-prepared and skilled workers, it is possible to better meet the needs of the construction market, improving the quality of services offered and, consequently, customer satisfaction. Additionally, the course promotes the personal development of participants, encouraging continuous pursuit of improvement and professional updating, which are essential factors for competitive entry into the job market.

d) Unveiling Excel

The workshop "Unveiling Excel" was held in the computer lab of a university center in Japonvar (MG)

and aimed to train municipal employees, local entrepreneurs, and other interested individuals in the efficient use of Excel software. The activity was structured to cover a wide range of topics and teaching methods, providing participants with an in-depth understanding of the various tools and functionalities of Excel. From the introduction of basic formulas to the use of advanced functions for data analysis, participants were guided to develop practical and applicable skills that are crucial in today's job market.

The justification for holding the workshop lies in the growing need for technological skills in the professional environment. Excel knowledge is considered essential for various administrative and financial roles, enabling the completion of complex tasks quickly and efficiently. Training in Excel not only increases participants' productivity and efficiency but also enhances their professional value, expanding their opportunities in the job market. Thus, the workshop brings multiple benefits to the community, contributing to the personal and professional development of participants and strengthening the local economy.

The expected return for the community is significant, both economically and socially. By providing participants with mastery of a widely used tool, the workshop promotes professional empowerment and improves citizens' employability, which, in turn, can boost local economic development. Additionally, access to technological education fosters digital inclusion, ensuring that more people can fully participate in the digital society and take advantage of the opportunities it offers. Therefore, the "Unveiling Excel" workshop not only enhances technical skills but also contributes to building a more informed and prosperous future for the community.

e) *Financial Education*

The "Financial Education" workshop, held at a municipal school in Japonvar (MG), focused primarily on raising community awareness about the importance of responsible and organized financial management. The activity was divided into two main parts: a theoretical presentation, which covered fundamental concepts such as the definition of financial education, its relevance to daily life, and effective strategies for managing personal and household finances; and a discussion group, where participants could share their experiences and methods of financial organization. This interaction facilitated a rich exchange of information, allowing participants to learn from each other and receive practical guidance on how to improve their financial management.

The justification for holding the workshop lies in the growing need for awareness about financial education across all age groups and social contexts. Many people still lack the necessary knowledge to manage their finances efficiently, which can lead to

unnecessary expenses and financial difficulties. The workshop aimed to fill this gap by providing participants with not only theoretical knowledge but also practical tips on how to save money, increase income, and use resources available in the community to improve the local economy. Financial education was presented as a fundamental element for promoting the autonomy and financial security of individuals and their families.

The expected return for the community goes beyond the development of financial skills. By learning how to better manage their finances, participants are empowered to avoid unnecessary debt and make more informed financial decisions, thereby promoting greater economic stability in their lives. Additionally, the workshop aimed to strengthen community ties by encouraging the exchange of goods and services among community members and the development of local economic initiatives, such as the production of goods using regional raw materials. This community-focused approach contributes to creating an environment of mutual support, where resources are optimized, and sustainable development is promoted.

f) *Vocational Guidance Workshop*

This workshop was held in a municipal school and in a city square. The workshop was attended by elementary and high school students, as well as other passersby in the area.

The main objective of this action was to guide high school students and the community about federal and private programs that assist in academic training, both in-person and online, in order to increase the educational level and qualifications of the community.

During the workshop, the main fields of knowledge and some professions within these fields were presented, and a roundtable discussion was held about careers, the skills that are enhanced in each profession, and potential professional paths. In addition, some methods of professionalization with a focus on higher education were presented. This workshop is highly relevant in supporting young people preparing for college entrance exams who are faced with the need to decide on a professional path, providing information on career paths, sharing information and experiences about careers, and promoting reflection on their own future.

g) *Resume Writing Workshop*

The resume writing workshop took place in a municipal school in Japonvar, MS, and was attended by teenagers, young adults, and adults. The main objective of this action was to train the unemployed population seeking jobs, as well as those employed who wished to improve or change jobs, in resume writing.

During the workshop, a presentation was made indicating the main elements of a good resume, the relevance of this information, and the most effective way to structure it. The Rondon participants conducted a





practical activity on resume writing and facilitated a roundtable discussion addressing different scenarios.

This action was a great opportunity to train participants to develop more effective resumes that align with the demands of the job market. By providing guidance on the essential elements of a resume, proper formatting, organizing information, and how to highlight relevant skills and experiences, the workshop aimed to fill an important gap in the participants' professional preparation.

h) Career Fair

At the beginning of Onça Cabocla Operation in Japonvar, a Career Fair was held in a city square as one of the activities to publicize the presence of the Rondon participants and the project's actions in the municipality. The fair was later repeated on the last day of the operation as part of the closing activities. During the workshop, the participants developed various activities to present undergraduate courses and their respective fields of practice, as well as addressing some questions from the local community about the topics covered. Informative materials from the universities of groups A (Faminas) and B (UFOP) were presented to assist in the presentation of the undergraduate courses. The workshop had an impact on the population by sparking interest in fields of practice that had not previously been clear.

At the end of all the actions, evaluations were conducted to verify whether the participants were able to understand what was taught and if they were capable of becoming knowledge multipliers.

It was found that most workshop participants considered themselves capable of being agents of change in their communities, sharing the knowledge acquired in the workshops and promoting local development. This demonstrated that the communication strategies were effective in ensuring the sharing of knowledge in an accessible and relevant manner.

i) University Extension

The interaction between the university and the community, which is a consequence of university extension practices, plays a fundamental role in raising students' awareness of their responsibilities as citizens. This interaction provides future professionals with the opportunity to apply their knowledge for the benefit of a more just and better-assisted society, as highlighted by Ferreira (2009).

University extension projects, such as the Rondon Project, play a crucial role in knowledge construction. Their extension approach helps to expand the content acquired in the classroom, allowing students to understand other dimensions of Brazilian social reality and thus establish an effective connection between theory and practice (MORAIS, 2009).

V. CONCLUSION

The workshops conducted by the Rondon participants of Operation Onça Cabocla in the municipality of Japonvar/MS achieved excellent results, demonstrated by the high engagement and active participation of the attendees. The interactive approach of the workshops allowed participants to engage in constructive discussions, exchange knowledge, and practice relevant to each of the thematic areas. Additionally, the practical activities carried out during the workshops provided a tangible experience, strengthening the understanding of the theoretical concepts presented. The positive feedback from the participants highlighted the quality of the presentations, the expertise of the Rondon participants, and the direct applicability of the content to their everyday activities. The quality of the workshops empowered the direct participants and laid the foundation for creating multipliers within the community, providing a ripple effect, where participants can disseminate beneficial practices and perspectives to an even larger number of community members.

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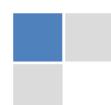
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8. Make every effort: Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

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10. Use proper verb tense: Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

11. Pick a good study spot: Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

12. Know what you know: Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

13. Use good grammar: Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.

Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

14. Arrangement of information: Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

15. Never start at the last minute: Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

16. Multitasking in research is not good: Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

17. Never copy others' work: Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

18. Go to seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

Refresh your mind after intervals: Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

19. Think technically: Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.



20. Adding unnecessary information: Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grown readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

21. Report concluded results: Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

22. Upon conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

Final points:

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

The introduction: This will be compiled from reference material and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

The discussion section:

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear: Adhere to recommended page limits.



Mistakes to avoid:

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.
- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

Title page:

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

Abstract: This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

Reason for writing the article—theory, overall issue, purpose.

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

Approach:

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

Introduction:

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.



The following approach can create a valuable beginning:

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.

Approach:

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

Procedures (methods and materials):

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

Materials may be reported in part of a section or else they may be recognized along with your measures.

Methods:

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

Approach:

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

What to keep away from:

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.



Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.

Content:

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

What to stay away from:

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

Approach:

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

Figures and tables:

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

Discussion:

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."



Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

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BY GLOBAL JOURNALS**

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Topics	Grades		
	A-B	C-D	E-F
<i>Abstract</i>	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
<i>Introduction</i>	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
<i>Methods and Procedures</i>	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
<i>Result</i>	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
<i>Discussion</i>	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
<i>References</i>	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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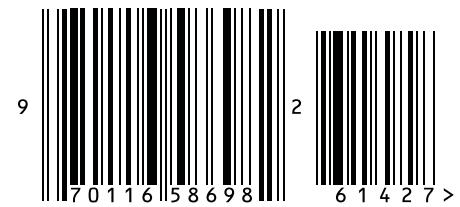


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