Disabilities people and unitholders races: comparative studies in Brazil with diagrams tree uses

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Abstract

Throughout the world, disabilities people have worse health prospects, lower education levels, lower economic participation, and higher poverty rate in comparative terms to people without disabilities. For disabilities people achieve better and more long lasting prospects, we must empower these people and remove barriers that restrict them from participating in the community have access to quality education, to find decent work and have their voices heard. Simultaneously, in racial terms, Brazilian culture has fostered integration and miscegenation in the nineteenth and twentieth centuries and racial. However, race relations in Brazil have not been harmonious, especially regarding the role of disadvantage of blacks, browns and indigenous, heavily exploited groups in the colonial period of the country, which tend to occupy less prestigious positions, in addition to culture shock issues and difficulty racial preservation. In this work, was applied crossings between pairs of variables, homogeneity test and technical diagrams tree for formation of groups second sample disability index with values ranging from zero when shows no impairment, 10 when has a deficiency in its highest level of gravity and races which are considered public targets for affirmative action proposed by different government levels (federal, state and municipal) and from dataset obtained from the 2010 Population Census data sample (respondents complete questionnaire) formed by 20,635,472 people interviewed all over the country with the objective of comparative studies relationship between different variables such as disability, races, education level, gender, income in minimum wages among others.

Keywords: diagrams tree; homogeneity test, disability people; races.

1. Introduction

The history of the disabilities people varies from culture to culture and reflects beliefs, values and ideologies that, embodied in social practices, establish different relationships modes between this and others, with or without disabilities. The deficiency presents itself as a socially constructed phenomenon and, therefore, be or be "disabled" is almost always related to other people who are considered no "deficiencies" (Amiralian, 1986; Higino, 1986; Amaral, 1994; Bruns, 1997; Dall'Acqua, 1997).

Disability, a universal challenge with social and economic costs for individuals, families, communities and nations continue to be considered; It varies according to a complex combination of factors including age, sex, exposure to environmental hazards, economic status members, Culture and available resources; They are associated with chronic health problems; Global aging; and finally; disabilities people and households with a disabled member are facing the worst economic and social realities, comparing people who do not have disabilities.

Gradually, society has realized that in addition to charity and assistance, such persons should be included in public policies and programs that could improve their production potential (Carvalho, 2001; Garcia, 2010).

For disabilities people achieve better and more lasting perspective, we must empower these people and remove the barriers that prevent them from participating in the community to have access to quality education, to find decent work and have their voices heard (Figueira, 2008).

According to the IBGE (of Portuguese, *Brazilian Institute of Geography and Statistics*) census of 2010, it is estimated, (in millions), we have a population consisting of 45.6 million people with at least one disability, representing 23.9% of the population. Of that number, in millions, have 77.9% (35.5) with visual impairment, 21.9% (10) with hearing impairment, 29.7% (13.5) with walking disabilities and 6.4% (3.4) with permanent intellectual disability; from the viewpoint of the amount of deficiencies we obtain at least 72% and 28% deficiency over a disability; 22.2% (32.8) shows no schooling; 27.5% (12.5) living in extreme poverty; 92.3% (43.1) are of working age; of these, 43.7% (20) perform activities characterized as being work, 88% (17.6) perform paid activities, and; 36.1% (7.2) does not have a formal contract.

On the other hand, the racial makeup of Brazilian society is the result of a confluence of people from many different ethnic backgrounds, the original indigenous peoples, Africans, the Portuguese colonialists and later immigration waves of European, Arab and Japanese, and other Asian peoples and countries south Americans. Race is a social construct used to distinguish people in terms of one or more

physical marks, the color among them that are socially significant. Brazil can be pointed out as an example of the concept of race is a social construction, In the nineteenth and twentieth centuries, Brazilian culture has fostered integration and miscegenation. However, race relations in Brazil have not been harmonious, especially regarding the role of disadvantage of black Brazilians and indigenous heavily exploited groups in the colonial period of the country, which tend to occupy less prestigious positions, in addition to culture shock issues and difficulty of racial preservation. Racial quotas are the reservation of vacancies in public or private institutions for specific groups classified as "race", most of the time, blacks and indigenous.
Arising in India in the 1930s, racial quotas are considered a form of affirmative action, something to reverse the historical racism against certain racial classes. Although many consider quotas as a social inclusion system, there is controversy as to its consequences and constitutionality in many countries. In Brazil, according to the IBGE in the census of 2010 is estimated to have a population consisting of 47% (89) million whites, 7.1% (13.4) of African descent, 1.0% (1.9) yellow, 44.2% (83.9) of mixed race, and, 0.5% (1) Indigenous.
In this work, we will make a comparative study between the different forms of relationship between different races and disability level as their partitioning using decision tree diagram according dee a set of independent variables obtained from the IBGE 2010 census linked to identification, level education, family, work and income, housing conditions and possession of other goods.

2. Materials and methods

2.1. Motivation

It is known that the main factor that can cause a person to become disabled person can be: at birth due to congenital problems, birth disability and genetic problems; violence, ill-treatment and accidents: they are at home, at work or on the street; increased life expectancy and problems caused by an aging population; and finally; problems of mismanagement, lack of priority and importance to this issue, lack or diversion of resources to be allocated, which prevents a better efficiency in solving this problem.
From this point of view, it is of interest to all, taken effective measures of prevention and accessibility so that can prevent new cases and to mitigate existing cases.
On the other hand, the group of people belonging to unitholders races (blacks, mulattos and Indians) in their relations in Brazil, has not been harmonic, resulting in a paper disadvantages for shareholders races exploited since the colonial period, occupying less privileged positions , cultural shock and difficulty of racial preservation.
It is also public knowledge that the mobilization by disabilities people is much more recent (30 years now) in relation to groups formed by unitholders races (since the colonial period), because of this, the mobilization of groups african descendants attracts more attention than the group of disabilities people.
Under this scenario described, it is of interest by researchers answer the following question: between the groups formed by disabilities people and quota holders races, who is in worse conditions, fewer and have greater needs for care by the Public sector?
In response to this and other issues, I propose to further characterize these two groups and to analyze in comparative terms of their different ways of living, working and studying considering statistically using descriptive analysis and tree diagram considering a sample of 20800804 respondents complete the questionnaire of the 2010 Census the IBGE.

2.2. Disabilities

The term disability means a physical, intellectual or sensory impairment, whether permanent or temporary, which limits the ability to perform one or more activities. Disabled person refers to any person who has a disability and who are under the protection of a law.
According to the 2010 IBGE Census, deficiencies were divided into physical, hearing, visual and intellectual, in his questionnaire, IBGE established four different degrees of severity for each of the first three deficiencies cited as follows: 1 – can´t so some, 2 – can, but with difficulty; 3 - can, but with some difficulty, and finally; 4 - presents no difficulty, and for intellectual disability were considered the following possibility: 1 - yes, if you have a disability intellectual who is permanent and 2 - no, if you don´t have.
The most serious cases, which are considered as candidates for aid and benefits by public authorities, i.e., those represented by the groups 1 and 2 and all cases of disability intellectual. In this work, however, we are considering all possible cases.

2.3. Homogeneity test

For this study, we use homogeneity tests in order to verify that a random variable behaves similarly or homogeneous in various subpopulations considering disability index in relation with other related variables as described in Oliveira (2014).

2.4. Trees diagrams

It is a technique used in situations in which the goal is to divide the population into differentiated segments in relation to a given criterion as described in Oliveira (2014) in technical exhaustive AID.

2.5 IBGE Census

The Census is a survey conducted by IBGE every ten years. Through him, we gather information about all the Brazilian population.
Our first census took place in 1872 and it was named the Population Census of the Empire of Brazil. The most recent was the 2010 Census.
In the census, the IBGE researchers visit all households in the country to use a questionnaire. After traveling all over Brazil, going from house to house, the researchers organize and analyze the information collected in the questionnaires. They report the results in a series of publications on the topics studied.
For the census two questionnaires are used: basic questionnaire that is answered by the all households and the full questionnaire answered by the selected households.
The results of the Census are important for society to have updated information on the population and the government plan its actions more adequately.
In this work, we are considered the full questionnaire because it contains data on persons with disabilities and without disabilities.
The advantages in this case are random sample from across the country and take into account the data regarding formal and informal workers, and the downside is that the collected data are obtained solely by the response of the respondents and may not count as documentary evidence.

2.6. Variables descriptions

In this study, we consider variables assigned to the disability as described in Oliveira (2014b) and adding disability index.

2.7. Disability index

This is an index that measure the disability severity degree for each person, in this case the established criteria was based on the degree of disability severity according to the established by the IBGE in the demographic census 2010 assigning 3 points for those can not in any way see, hear, walk and intellectual; 2 points for those who can with difficulty seeing, hearing or walking; 1 point for those who can with some difficulty, and finally zero for those not present any problem with regard to the studied deficiencies. The disability index is the resultant scores assigned to each of these disabilities, getting a score ranging from 0 to 12.

3. Results and discussion

The disability index was created according to the following criteria: were awarded three points to level 1 of all deficiencies; 2 points for levels 2 to see, hear or walk; a point for level 3 all the shortcomings, and, finally, zero; for those who do not show deficiency.
The Table 1 shows the distribution in number and proportion in porcentage for the variables race, total and for each level of the variable disability index.
In examining Table 1 shows 47.0% white, 7.1% black, 1,0% yellow, 44.3% brown and 0.5% of respondents indigenous, and, for disability index 76.1% no disability, 13.7% one point disability; 5.2% two; 2.8% three; 1.1% four; 0.5% five; 0.3% six ; 0.1%, 7, and, finally; since 8 to 12 0.0%.
The sum the groups of the races that belongs in affirmative quotas result in 52% of the respondents; indigenous, higher concentration of persons without disability, and; yellow, higher proportion of disabiulities people.
The Table 2 shows distributions of the race and disability index by the level of the variables instruction and geographical region. Repair that instruction level is encoded by the following levels : 0, no education; 1, incomplete elementary level until the fourth year or corresponding; 2, fifth year to incomplete elementary level; 3, among complete elementary and incomplete secondary level; 4, among full mid-level or college incomplete; 5, among college degrees and master´s incomplete; 6,

specialization after graduation; 7, among full master´s and doctoral incomplete; 8, full doctoral complete or more, and. By the end; 10 – indetermined and verify that in incomplete elementary represent the sum among 0, 1 and 2 in column red bold and column blue bold represents complete college or more (columns 5, 6, 7 and 8).

Table 1. Distribution in number and porcentage of race, for variables total and disability index.

			DISABILITY INDEX												
		Total	0	1	2	3	4	5	6	7	8	9	10	11	12
RACE	WHITE	9704314	7417274	1320304	491889	264724	107442	49009	30886	10894	5211	4773	882	281	745
		47.0%	76,4%	13,6%	5,1%	2,7%	1,1%	,5%	,3%	,1%	,1%	,0%	,0%	,0%	,0%
	BLACK	1455841	1058208	216431	92388	49390	21362	9331	5172	1791	910	645	111	36	66
		7.1%	72,7%	14,9%	6,3%	3,4%	1,5%	,6%	,4%	,1%	,1%	,0%	,0%	,0%	,0%
	YELLOW	211945	154142	33419	12657	6422	2815	1209	755	269	118	106	22	4	7
		1.0%	72,7%	15,8%	6,0%	3,0%	1,3%	,6%	,4%	,1%	,1%	,1%	,0%	,0%	,0%
	BROWN	9148854	6975630	1255484	476916	251897	101153	44494	26098	8900	3957	3186	561	197	381
		44.3%	76,2%	13,7%	5,2%	2,8%	1,1%	,5%	,3%	,1%	,0%	,0%	,0%	,0%	,0%
	INDIGENOUS	111834	91527	10454	4742	2859	1151	546	354	111	39	36	9	3	3
		0.5%	81,8%	9,3%	4,2%	2,6%	1,0%	,5%	,3%	,1%	,0%	,0%	,0%	,0%	,0%
Total			15696781	2836092	1078592	575292	233923	104589	63265	21965	10235	8746	1585	521	1202
			76,1%	13,7%	5,2%	2,8%	1,1%	,5%	,3%	,1%	,0%	,0%	,0%	,0%	,0%

Analizing Table 2 shows that instruction level increase for white and yellow and decrease for black, brown, indigenous and desability index. The distribution for instruction level is 11.5% for level 0; 38.2%, 1; 19.1%, 2; 7.8%, 3; 17.5%, 4; 4.5%, 5; 0.8%, 6; 0.2%, 7; 0.1%, 8, and, finally; 0.4%, 9; 9 is the grater than sum of 7 plus 8, and, hightest concentration for level 1 with 38.2%. In terms of education level, and, best situation for white and yellow (lower proportion of people with the incomplete fundamental level and a higher proportion of people with college degrees or more) and worse according to the same criteria for indigenous. In geographical region have North 8.4%, Northeast 28.9%, Southeast 37.3%, South, 17.2% and Midwest 7.2%. Hightest concentration for North indigenous; Southeast white and black; Northeast brown; South white, and, by the end, Midwest indigenous.

For disability index, the higher the disability index, the higher proportion of people with incomplete primary education level and lower proportion with college degrees or more. In terms of geographical region, people with higher rate disability, are more concentrated in the Southeast region followed by the northeast.

In comparison, the groups formed by blacks and browns have better level of education that people with higher disability rate than or equal to two and the indigenous group in a better position than disabled people between 3 and 11.

The graphic of Figure 1 shows the tree diagram for dependent variable races.

Looking at the graph in Figure 1 we note that the main variable that partitions races was geographic region, which in turn, north and west center partitioned marital status; Northeast number of persons by room which in turn were partitioned marital status; southeast, it has car for private use which in turn were partitioned has washing machine and activity condition in week, and finally; south region has microcomputer.

The graphic of Figure 2 shows the tree diagram for dependent variable disability index

Studying Figure 2, it appears that the partitioned variable was first marital status, education level and then read and write.

Making a comparative study of the graphs of Figures 1 and 2 it appears that the different breeds are more partitioned the area where he lives, while the disability index is partitioned by marital status and education level and Table 2 it appears that the education level for disabilities people in general, is smaller than the different shareholders racial groups, mainly brown and black.

This type of result may reflect that for disabilities people may have better life quality, need to be better included in society and for this need that attitudinal and physical barriers are broken and this covers all urban equipment, specific care of needs of disabilities people and schools are accessible, while the issue of unitholders races relates to discrimination they suffer, often linked to social and historical context without the need arise other modifications.

4. Conclusions

The group formed by the indigenous focus more in the north, the northeast brown, blacks and people with disabilities in the southeast.
The groups formed by black and brown people are better off than people with index disabled index two or more as a lower proportion of people with education level of the incomplete primary maximum and a higher proportion of people with college degrees or more.

Table 2. Distribution in number and porcentage of race and disability index for variables instruction level and geographical region.

		INSTRUCTION LEVEL												Geographical regiojn				
		0	1	2	incomplete elementary	3	4	5	6	7	8	complete college or more	9	North	Northeast	Southeast	South	Midwest
RACE	WHITE	735277	3576030	1822321	6133628	730337	1977836	651250	125817	31168	12291	820526	41987	386274	1766152	4177146	2770281	604461
		7,6%	36,8%	18,8%	63,2%	7,5%	20,4%	6,7%	1,3%	,3%	,1%	8,5%	,4%	4,0%	18,2%	43,0%	28,5%	6,2%
	BLACK	246885	503768	311158	1061811	112913	234288	33179	5824	1243	359	40605	6224	116995	535014	581623	128434	93775
		17,0%	34,6%	21,4%	72,9%	7,8%	16,1%	2,3%	,4%	,1%	,0%	2,8%	,4%	8,0%	36,7%	40,0%	8,8%	6,4%
	YELLOW	23934	72329	36623	132886	16838	41719	16003	2465	671	311	19450	1052	19729	72838	77247	21907	20224
		11,3%	34,1%	17,3%	62,7%	7,9%	19,7%	7,6%	1,2%	,3%	,1%	9,2%	,5%	9,3%	34,4%	36,4%	10,3%	9,5%
	BROWN	1346852	3678983	1759151	6784986	734591	1342697	200421	36080	6348	1942	244791	41789	1158139	3768754	2853020	619087	749854
		14,7%	40,2%	19,2%	74,2%	8,0%	14,7%	2,2%	,4%	,1%	,0%	2,7%	,5%	12,7%	41,2%	31,2%	6,8%	8,2%
	INDIGENOUS	27589	53276	14829	95694	5987	8165	1211	209	61	29	1510	478	41910	27247	10554	13916	18207
		24,7%	47,6%	13,3%	85,6%	5,4%	7,3%	1,1%	,2%	,1%	,0%	1,4%	,4%	37,5%	24,4%	9,4%	12,4%	16,3%
Total		2380537	7884386	3944082	14209005	1600666	3604705	902064	170395	39491	14932	1126882	91530	1723047	6170005	7699590	3553625	1486521
		11,5%	38,2%	19,1%	68,9%	7,8%	17,5%	4,4%	,8%	,2%	,1%	5,5%	,4%	8,4%	29,9%	37,3%	17,2%	7,2%
DISABILITY INDEX	0	1321562	6227212	2892204	10440978	1346599	2937581	718487	135715	31465	11626	897293	77005	1346388	4567228	6020529	2768569	1162074
		8,4%	39,7%	18,4%	66,5%	8,6%	18,7%	4,6%	,9%	,2%	,1%	5,7%	,5%	8,5%	28,8%	37,9%	17,5%	7,3%
	1	403081	931137	648793	1983011	182333	485194	139081	26785	6288	2476	174630	10927	229902	927311	1018058	457609	203215
		14,2%	32,8%	22,9%	69,9%	6,4%	17,1%	4,9%	,9%	,2%	,1%	6,2%	,4%	8,1%	32,7%	35,9%	16,1%	7,2%
	2	256726	381407	236336	874469	46331	118948	29327	5560	1152	540	36579	2271	84861	366409	372483	182778	72067
		23,8%	35,4%	21,9%	81,1%	4,3%	11,0%	2,7%	,5%	,1%	,1%	3,4%	,2%	7,9%	34,0%	34,5%	16,9%	6,7%
	3	202752	200483	101108	504343	16690	41218	9919	1611	399	191	12120	921	41788	193898	204369	99779	35458
		35,2%	34,8%	17,6%	87,7%	2,9%	7,2%	1,7%	,3%	,1%	,0%	2,1%	,2%	7,3%	33,7%	35,5%	17,3%	6,2%
	4	93578	80547	38460	212585	5120	12502	2926	432	92	50	3500	216	16966	81889	80411	40197	14460
		40,0%	34,4%	16,4%	90,9%	2,2%	5,3%	1,3%	,2%	,0%	,0%	1,5%	,1%	7,3%	35,0%	34,4%	17,2%	6,2%
	5	48863	33315	14616	96794	1880	4611	1026	133	45	23	1227	77	7346	36747	35887	18073	6536
		46,7%	31,9%	14,0%	92,5%	1,8%	4,4%	1,0%	,1%	,0%	,0%	1,2%	,1%	7,0%	35,1%	34,3%	17,3%	6,2%
	6	32939	18477	7605	59021	963	2498	603	82	28	14	727	56	4411	21524	22537	10769	4024
		52,1%	29,2%	12,0%	93,3%	1,5%	3,9%	1,0%	,1%	,0%	,0%	1,1%	,1%	7,0%	34,0%	35,6%	17,0%	6,4%
	7	11496	6416	2614	20526	321	846	221	22	5	6	254	18	1544	7313	7896	3718	1494
		52,3%	29,2%	11,9%	93,4%	1,5%	3,9%	1,0%	,1%	,0%	,0%	1,2%	,1%	7,0%	33,3%	35,9%	16,9%	6,8%
	8	5694	2885	1080	9659	110	346	97	7	3	1	108	12	732	3228	3747	1809	719
		55,6%	28,2%	10,6%	94,4%	1,1%	3,4%	,9%	,1%	,0%	,0%	1,1%	,1%	7,2%	31,5%	36,6%	17,7%	7,0%
	9	3761	2698	993	7452	244	707	272	36	13	3	324	19	591	2460	3593	1504	598
		43,0%	30,8%	11,4%	85,2%	2,8%	8,1%	3,1%	,4%	,1%	,0%	3,7%	,2%	6,8%	28,1%	41,1%	17,2%	6,8%
	10	956	415	119	1490	9	58	24	2	0	0	26	2	93	459	644	269	120
		60,3%	26,2%	7,5%	94,0%	,6%	3,7%	1,5%	,1%	0,0%	0,0%	1,6%	,1%	5,9%	29,0%	40,6%	17,0%	7,6%
	11	346	117	29	492	3	16	8	1	0	0	9	1	36	163	203	88	31
		66,4%	22,5%	5,6%	94,4%	,6%	3,1%	1,5%	,2%	0,0%	0,0%	1,7%	,2%	6,9%	31,3%	39,0%	16,9%	6,0%
	12	344	370	143	857	64	187	75	10	2	2	89	5	59	257	555	246	85
		28,6%	30,8%	11,9%	71,3%	5,3%	15,6%	6,2%	,8%	,2%	,2%	7,4%	,4%	4,9%	21,4%	46,2%	20,5%	7,1%
Total		2382098	7885479	3944100	14211677	1600667	3604712	902066	170396	39492	14932	1126886	91530	1734717	6208886	7770912	3585408	1500881
		11,5%	38,2%	19,1%	68,9%	7,8%	17,5%	4,4%	,8%	,2%	,1%	5,5%	,4%	8,3%	29,8%	37,4%	17,2%	7,2%

The higher the level disability, the greater the proportion of people with at most incomplete and less fundamental level is the proportion of people with college degrees or more.
In general, disabilities people have greater difficulty in obtaining better educated than members of unitholders races.

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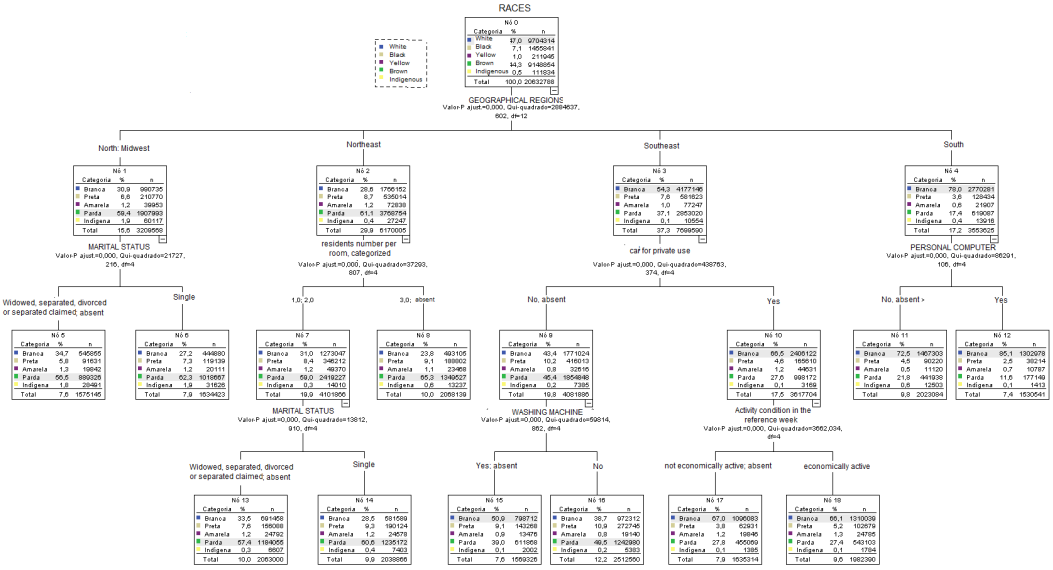

Figure Figure 1. Tree diagram for dependent variable race.

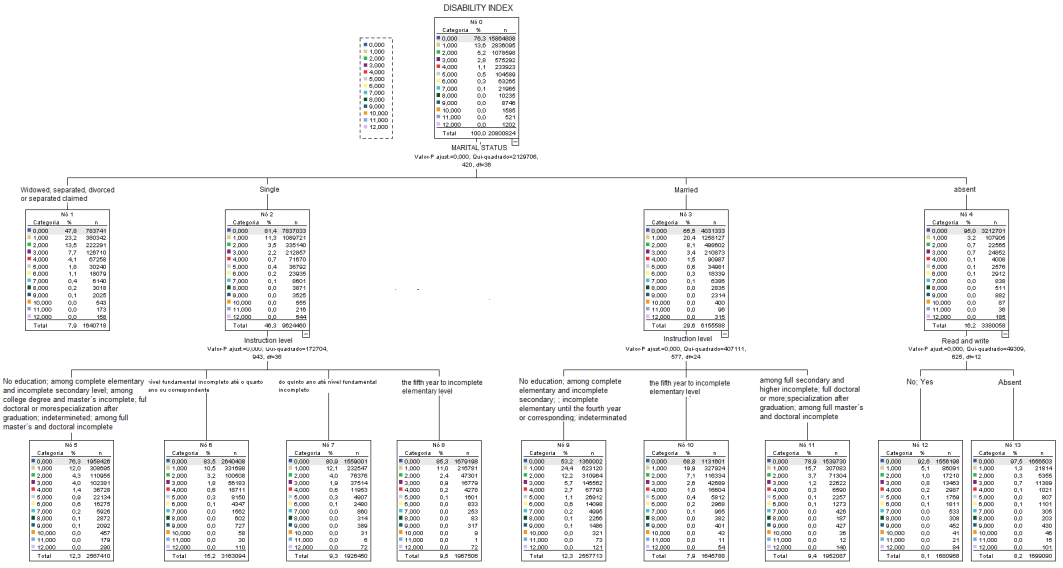

Figure 2. Tree diagram for dependent variable disability index

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