Volume 20 Issue 8
Originally issued as G1

Global Journal of human-social science: G
Linguistics & Education
Volume 20 Issue 1 Version 1.0 Year 2020
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-460X & Print ISSN: 0975-587X

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Keywords: *deafness. quality of life. sign language. health promotion.*

GJHSS-G Classification: *FOR Code: 939999*



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Factors Related to the Quality of Life in the Context of Deaf Sign Language users in Brazil

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Results: Results have evidenced that total mean scoring in the WHOQOL-BREF was 43.3%. The domain with the highest scoring was Social Relationships (64.31%), and the lowest-scoring was Environment (54.77%). The deaf participants with the highest schooling level were those who have realized themselves as proficient in oral and written Portuguese language and also have the highest salaries, they have had the best scoring in quality of life.

Conclusion: Despite many participants are reasonably satisfied with their quality of life, it could be noticed by their answers, especially in the Environment domain, that some aspects related to jobs, healthcare services, safety and leisure are unfavorable. These factors signal demands should be considered while planning and implementing health promotion actions toward this community.

Keywords: deafness. quality of life. sign language. health promotion.

I. Background

One of the societal challenges in the 21st century is interacting with the diversity and assuring the right to equality to all shares of the population. It certainly must include the interaction with disabled people, including deaf people which are sign language users (Ayantoye & Luckner, 2016).

Brazilian researchers, Chaveiro et al. (2014), state that this population often has been facing linguistic difficulties to interact with people who do not use sign language and those difficulties may have revealed serious consequences to their social, emotional and also cognitive development.

In Brazil, the Brazilian Sign Language (Libras) was recognized by Federal Law number 10.436 in 2002 as a legal mean of communication and expression, it has also been considered a visual-motor linguistic system with its own gramatical structure (Brasil, 2002). That legislation also sets institutionalized ways to support and disseminate Libras in public health service concessionaires and institutions, which must reassure proper care and treatment to deaf individuals, according to current legal regulations.

Chaveiro et al (2013) has explained the non-recognition of deaf individuals' linguistic diversities hinders the access of that share of the population to primary health care services offered by the Unified Health System (SUS). That system was set up in 1988 under the Brazilian Constitution, and states that "Health is a right for all and duty of the State". Although this system has been in effect since late 1980s, Brazilian studies, such as Chaveiro (2011, 2014) and Garcia (2016), has showed that there are very few sign language interpreters in public institutions over the country, in addition, there is no qualification for public servants, as a whole, to render service to deaf sign language users, which weakens their interactions in these settings (Quadros, 1997; Chaveiro et al, 2014).

The National Health Policy for impaired people, which came to effect in Brazil in 2002 (Brasil, 2008), states that quality of life and its promotion are shared social responsibilities and the improvement of information mechanisms to drive health and impairment research must be accessible in Braille and Libras. In this light, our greatest interests are studies that assume that the promotion of the quality of life to this share of the population is essential (Brasil, 2008).

Quality of life should be understood as a multidimensional concept in this context, which reflects people's perception regarding to their social, cultural position, their conditions of education, labor, health, housing, security and personal relations. According to the World Health Organization (WHO), quality of life[1] (QOL) is defined as "an individual's perception of their position in life in the context of the culture and value systems where they live and in relation to their goals, expectations, standards and concerns" (The Who QOL

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Group, 1995, p. 03). The assessment of health-related quality of life has been increasingly used to analyze outcomes of clinical studies and broaden understanding about the impact of certain diseases on an individual's life.

By reviewing literature which relates quality of life (QOL) and deafness, it was possible to verify that studies by Almeida et al (2015), Angelo et al (2016), and Himi & Takano (2016) on this subject, are usually carried out with hard of hearing people users of hearing aids and cochlear implants. On the other hand, studies, such as Chaveiro et al (2014), Fellinger et al (2012), and Garcia (2016) have addressed to the QOL of deaf sign language users are in lower number and have evidenced the difficulties that this share of the population has been facing to access health care services, in addition to a reduced knowledge on their own life and QOL.

International studies show that deaf people who have higher scores in quality of life (QOL) social relations and emotional domains are the ones who participate in deaf communities and use sign language (Fellinger et al, 2005; Fellinger et al, 2007). According to Jaiyeola & Adeyemo (2018), unlike in Europe and North America, the experiences of deaf people and the effects of deafness on their QOL have not been fully studied in developing countries yet. Their study was held in Nigeria, but we can also infer that in Brazil, like many developing countries have had sparse data relating QOL and deaf people sign language users. Such data is required for population who needs assessment, intervention programs design, evaluation and educational placement.

A study by Kushalnagar et al. (2010), from the Department of Health Services at the University of Washington in Seattle, USA ha showed important implications in the quality of life of deaf young individuals. Its data shows that several deaf individuals evidence depressive symptoms, which are related by the authors to either their difficult or almost non-existent communication to their parents. The convenience sample in this study comprised 230 young deaf teenagers (mean age =14.1, 24% users of the Sign Language, 40% used speech, and 36% used both, Sign Language and speech). The authors have researched QoL and communication related issues and have noticed that the deaf people who have had good communication with their parentes have featured lower scores of depressive symptoms.

Similarly, Zöller & Archer (2015) carried out a study at the University of Gothenburg, Sweden, addressing the QOL of deaf sign language users. Results from this research have evidenced that, deaf individuals, who communicate better with their families, have had a better quality of life. Likewise, studies by Vaccari & Marschark (1997), Steinberg et al (1999), Meadow et al. (2004), Marschark (2007), and Kushalnagar et al. (2010) have showed that the access to interactions at home, at school and with their peers is highly important for the development of sign language, and that it is reflected on their QOL.

Analyzing and measuring the QOL among the population of deaf sign language users worldwide has shown to be a challenge. Chaveiro et al (2014), carrying out an integrative review of the scientific production on health-related quality of life of deaf sign language users, published between 2000 and 2012, has found only 14 articles using that criterion. Three of them have investigated the quality of life with instruments translated to sign language, six used instruments without translation or with symultaneous translation into the sign language, and five of them described the translation methodology of the instruments into the sign language.

Considering the discussion above, this paper has aimed to answer the following research question: which factors have influenced the quality of life among the deaf sign language population? Thus, this study aims to analyse some of the factors associated with better QOL scores among a group of deaf users of the Brazilian sign language by means of the proposed domains in the WHOQOL-BREF and in a sample profiling questionnaire.

II. Methods

This is a quantitative study using two instruments: the WHOQOL-BREF (The Who QOL Group, 1995), and a sample profiling questionnaire. This research was carried out in a city located in Southern Brazil, Curitiba, capital city of Paraná State, and in smaller towns around this capital city (Metropolitan Area) - São José dos Pinhais, Campo Largo, Pinhais and Colombo. Those towns were selected due to their proximity to the center where the research was performed and due to the presence of many deaf people, users of the sign language. It is worth elucidating that, according to data by the Instituto Brasileiro de Geografia e Estatística/2015[1] (Brazilian Institute of Geography and Statistics), there are over 2000 deaf-impaired individuals in the studied region.

This study was approved by the Ethics Research Board under number 50438915.5.0000.5529.

a) Participants

Sixty (60) deaf individuals participated in the research and the inclusion criteria were deaf participants, users of Libras, over 18 years old, residents in a city in the Southern Brazil and in towns around it, called Metropolitan Area.

Initially, for the participants' selection, institutions that have been attending deaf individuals, such as schools, universities, associations and religious institutions located in the above-mentioned cities were contacted. Such institutions provided deaf individuals' names and contacts from those ones who matched the

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research inclusion criteria. Then, a researcher e-mailed the participants and explained the study goals and instruments, thus, those deaf individuals, who have already matched the research inclusion criteria, were invited to participate.

The study sample consisted of 60 participants, Libras signers, between the ages of 18 and 58 years.

b) Instruments used

It should be elucidated that the WHOQOL-Bref questionnaire was selected for being an instrument objectifying the assessment of the quality of life, translated into several languages, and that presents satisfactory levels of equivalence, so that results reliably reflect the actual quality of life of a given community in its transcultural use. In addition, this instrument was selected for being the only Brazilian instrument with a validated version in the Brazilian sign language (WHOQOL-Bref, Libras 2016).

That instrument comprises 26 questions about the respondents Qol, health, other segments of their lives and their experiences in the four weeks prior to the study, which entail the original instrument. All the items in WHOQOL-Bref have five options each ranging from the highest to the lowest score (5-1). The questions of the instrument entail diverse aspects of the daily life and approach four domains of the QOL: physical, psychological, environmental and social relationships. Domain scores feature values between zero and one hundred, where the ones closest to zero stand for the worst, and the best ones are the closest to one hundred. The answers follow Likert scale (from 01 to 05), in which the higher the scoring, the better the quality of life. (The WHOQOL Group, 1995).

Using the WHOQOL-Bref Libras, one of the researchers e-mailed Chaveiro initially, who was responsible for the Brazilian validation of this instrument, requesting a "key" of the WHOQOL-Bref Libras software with its videos to use it. Chaveiro *et al.* (2014) developed a proper instrument to assess the QOL of deaf in their own language, justifying that it is easier for the deaf to answer these instruments in Libras.

It´s important to notice that the WHOQOL-Bref Libras is a video instrument, so the questionnaire questions, instead of use the written language as in the original test, are made through Libras. As it was explained in the introduction, this instrument was validated in Brazil in 2011.

This questionnaire was applied to obtain information about each participant and allows crossing and comparing the answers provided at the application of the QOL questionnaire, making the necessary complementations to measure the QOL of Libras, adding other factors that could influence it.

The suitability of these tolls to the study population was pretested in a previous study with a similar population in another Brazilian city.

c) Data collection

Data collection was held between July 2015 and February 2016, with 60 deaf individuals, in previously scheduled places by the researcher, via e-mail or phone contact. The participants, who have accepted to participate in the research, they have met individually with the researcher. Before answering the instruments, each participant has signed the Free Informed Consent Form.

Carrying out the data collection, the responsible researcher, proficient in Brazilian sign language[1], has explained to the participants, through Libras, that they have had the option to either answer the Written Portuguese Language version or to watch the video of the Sign Language version of the WHOQOL-Bref instrument.

Libras version was presented on a video and answers were provided in a printed sheet. Each participant could either choose to watch the videos and answer or only answer the printed version of the questionnaire. After elucidation, each participant has answered the questionnaires individually, with no researchers interference.

In addition to the WHOQOL-Bref instrument, each participant has answered the sample profiling questionnaire. It has contemplated questions on participants' sociocultural aspects, such as: gender, age, type of deafness, salary, current employment or unemployment status, use of Libras at work, occupation, schooling, view of each participant about him/herself regarding to the use of Libras and the Portuguese language and use of Libras by his/her family members.

This questionnaire was applied to obtain information about each participant and has allowed crossing and comparisons of answers provided at the application of the QOL questionnaire, making the necessary complementations to measure the QOL of Libras and also adding other factors that could influence it.

d) Analysis

The collected data were submitted to statistical analysis by means of descriptive statistical methods (tables of frequency, mean, standard deviation, minimum value, maximum value), and inference methods (Friedman's ANOVA and Statistical Tests -Chi-square Test and Fisher's Test), considering significance level of 0.05 (5%).

The sample profiling questionnaire collected data were analyzed in this research by crossing of the WHOQOL Bref results. In the discussion below, it was chosen to cross only some data from the WHOQOL-Bref questionnaire, especially in the domains of Social Relationships (best scoring), and Environment (worst scoring) with data from the sample profiling

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questionnaire to meet this study aims and the research question.

III. Results

Table 1shows the distribution of some variables: gender, age, hearing loss, degree of hearing loss, salary and schooling by absolute and relative frequencies.

Table 1: Sample general profile (n = 60)

Variables	Frequency	%
Gender		
Male	20	33,33%
Female	40	66,67%
Age	Mean age 28 years	
Hearing Loss		
	55	91,67%
	5	8,33%
Degree of hearing loss		
Severe to profound	60	100%
Salary		
1to 2 salaries[1]	20	33.33%
3to 4 salaries	15	25.00%
More than 4 salaries	12	20.00%
Occupation		
Unemployed	13	21,67%
Employed	47	78,33%
Schooling		
MiddleSchool (9 years)	06	10.00%
High School	18	30.00%
Graduated	19	31.67%
Specialization	13	21.67%
Master's degree	04	06.67%

Source: Research Data

The mean age of the 60 participants in the study was 28 years, standard deviation of 9.97 years (minimum age of 18 years and maximum age of 58). Regarding to the type of deafness, 91.67% (n=55) of the participants answered that they had congenital deafness, and only 8.33% (n=05) had acquired deafness. All of them had a severe to profound hearing loss. 10.00% of the participants (n=6) concluded Middle School, 30.00% (n=18) answered that they concluded High School, 31.67% (n=19) graduated from Higher Education, 21.67% (n=13) had post-graduation, and 6.67% (n=4) of the sample concluded a master's degree.

Thus 33.33% of the sample (n=20) work as a production assistant in automotive factories and earn 1 or 2 Brazilian minimum salaries[2], 25,00% (n=15) earn 3 or 4 salaries, work as sign language teachers, only 12 participants (20,00%) earn more than 4 salaries and they work as teachers at the university and 13 of them (21,67%) are unemployed.

Regarding general issues, in the application of the WHOQOL-Bref, it was perceived that more than half of the sample (51.7%) assesses their quality of life as good or very good, and 55% report satisfaction with their health.

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Mean scoring obtained in each domain (physical, psychological, social relationships and environment) of the quality of life is shown in Table 2. Friedman's ANOVA test was applied to organize that table, significance level of 0.05 (5%), it is being possible to verify the existence of outstanding diferences (p=0.0355) between the results of the domains. Identification of the differences evidences significant results between Environment and Physical domains (p=0.0085), Environment and Psychological domains (p=0.0032), Environment and Social Relationships domains (p=0.0069). Friedman's ANOVA was used because it requires the following assumptions: independence, homoscedasticity and normal distribution, not all of which were satisfied. Friedman's ANOVA is then adequate because the data are related and the scale is at least ordinal (not requiring normal distribution) since the method is non-parametric.

Table 2: Scores comparing through ANOVA and Friedman

Domains	N		Average Rank	Sum Of Ranks	Mean	Standard deviation
	R	N/R				
Physical	54	6	2,49	92,00	58.40	11.80
Psychological	57	3	2,66	99,00	61.26	14.13
Social Relationships	46	14	2,82	104,50	64.31	21.06
Environment	57	3	2,01	74,50	54.77	14.49

R = number of subjects who answered; N/R = number of subjects who did not answer.

The internal reliability of the WHOQOL-Bref questionnaire scale was 0.85. Likewise, for each of its four dimensions, Cronbach's scores were: 0.50 for the Physical domain, 0.51 for the Psychological domain, 0.76 for the Social Relations domain and 0.70 for the the Environment domain. By means of these results, it is possible to affirm that the items are homogeneous and that the scale consistently has measured what was proposed, for the Physical and Psychological domains the values were moderate.

It could be observed in the table above that the Environment domain, related to safety in daily life, leisure activities, housing conditions, means of transport and health care service has showed a significantly lower result than other domains. The physical environment, (THE WHOQOL GROUP, 1998).

In table 3, the scores for all the questions of the WHOQOL-Bref questionnaire are shown.

Table 3: Scores of the WHOQOL-BREF instrument

Question	N	MED	MIN	MAX	STD
1. How you rate your quality of life?	60	3.28	1	5	1.28
2. How satisfied are you your health?	60	3.35	1	5	1.10
3. To what extend do you feel that physical pain prevents you from doing what you need to do?	59	2.71	1	5	1.20
4. How much do you need any medical treatment to function in your daily life	60	2.58	1	5	1.05
5. How much do you enjoy life?	60	3.52	1	5	1.10
6. To what extent do you feel your life to be meaningful?	60	3.45	1	5	0.91
7. How well are you able to concéntrate?	59	3.20	1	5	0.80
8. How safe do you feel in your daily life?	59	3.39	2	5	0.77
9. How healthy is your physical environment?	59	2.95	1	5	1.06
10. Do you have enough energy for everyday life?	60	3.23	1	5	0.91
11. Are you able to accept your bolidy appearance?	58	3.57	2	5	0.88
12. Have you enough money to meet your needs?	60	3.08	1	5	0.87
13. How available to you is the information that you need in your day-to-day life?	60	3.27	1	5	0.97

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14. To what extent do you have the opportunity for leisure activities?	60	3.07	1	5	1.09
15. How well are you able to get around?	59	3.69	1	5	1.07
16. How satisfied are you with your sleep?	60	3.23	1	5	0.95
17. How satisfied are you with your ability to perform your daily living activities?	59	3.27	2	5	0.78
18. How satisfied are you with your capacity for work?	57	3.44	1	5	0.93
19. How satisfied are you with your self?	60	3.53	2	5	0.93
20. How satisfied are you with your personal relationships?	60	3.67	2	5	0.86
21. How satisfied are you with your sex life?	46	3.54	1	5	1.15
22. How satisfied are you with the support you get from your friends?	60	3.40	1	5	0.89
23. How satisfied are you with the conditions of your living place?	59	3.34	1	5	1.08
24. How satisfied are you with your Access to health services?	60	3.12	1	5	1.14
25. How satisfied are you with your transport?	60	3.27	1	5	1.04
26. How often do you have negative feelings such as blue mood, despair, anxiety, depression?	60	2.48	1	5	1.13

Source: Research Data
MED=mean; MIN=minimum; MAX=maximum; STD=standard deviation

Additional variances were analysed from the socio demographic variables collected by the sample profiling questionnaire. The results from this instrument, regarding the view about themselves on the use of the Portuguese Language have showed that almost 50% (n=29) of the participants reported that they currently have a good or very good use of the oral language. Also, for written language proficiency, 80% (n=49) of the participants reported to have a reasonable or good writing. When asked if they use Libras to interact with their family, only 25% (n=15) of the sample reported to interact by means of this language. Among those, most of them (n=14) have said that they have been using Libras with their mothers.

Table 4: Scores related to Portuguese language use and interactions (N = 60)

Variable	Frequency	%
Oral language proficiency		
Very good	16	26,67
Good	13	21,67
Reasonable	13	21,67
Bad	18	30,00
Written language proficiency		
Good	19	31,67
Reasonable	30	50,00
Bad	11	18,33
Family use of Libras		
Yes	15	25,00
No	45	75,00

Source: Research Data

By correlating data between salary and the use of oral and written language, it was observed by means of the Fisher's Test, significance level of 0.05, significant correlation between salary rate and orality (p=0.0481) and written language (p=0.0329), with frequencies showing that the best results for orality and writing occur among higher salary rates.

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Table 5: Relation between salary and language – Fisher´s test

Salary	Orality				P
	Bad	Medium	Good	Total	
1 to 2 salaries	9	2	2	13	
3 to 4 salaries	8	7	5	20	
More than 4 salaries	1	8	6	15	*0,0481
Unemployed	1	3	8	12	
TOTAL	19	20	21	60	
WRITING					
1 to 2 salaries	5	5	3	13	
3 to 4 salaries	3	15	2	20	
More than 4 salaries	-	11	4	15	*0,0329
Unemployed	2	4	6	12	
TOTAL	10	35	15	60	
READING					
1 to 2 salaries	3	9	1	13	
3 to 4 salaries	3	14	3	20	
More than 4 salaries	1	9	5	15	0,1266
Unemployed	1	4	7	12	
TOTAL	8	36	16	60	

Source: Research Data

According to the table 6 below, through the chi-square test, at the significance level of 0.05, it is verified that there is a significant correlation between schooling and orality (p = 0.0001), written language (p = 0, 0005) and reading (p = 0.0005), evidencing that the best QOL results occur through the improvement of schooling.

Table 6: Relation between schooling and orality, writing and reading – Test qui-square

Variable	School Training			Total	P
	Elementary School	High School	Higher Education		
Orality					
Bad	-	17	2	19	
Medium	-	11	9	20	*0,0001
Good	1	2	18	21	
Writing					
Bad	-	9	1	10	
Medium	-	20	15	35	*0,0005
Good	1	1	13	15	
Read					
Bad	-	7	1	8	
Medium	-	22	14	36	*0,0005
Good	1	1	14	16	

Source: Research Data

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IV. Discussion

The current study is one of the few Brazilian studies which assess the QOL of Brazilian deaf sign language users. In this section only some of the research results, especially the ones related to the Social Relationship (best scores) and Environment (worst scores) domains of the WHOQOL-Bref will be discussed and compared with the variables found in the sample profiling questionnaire.

The collected data reveal that most individuals of this sample were female, mean age of 28 years, congenital deafness, working and among the working participants, most of them earn between one and two minimum salaries, the percentage of deaf individuals earning more than two minimum salaries gradually decreases.

Crossing those data with question 18 from the physical domain of the WHOQOL-Bref, *How satisfied are you with your job performance?* it is perceived that the participants, in general, are satisfied with their job environment. However, they have reported dissatisfaction, even graduated and post-graduated deaf individuals, with their low salaries.

According to some participants, as they answered in the sample profiling questionnaire, deaf individuals earn less than people with normal levels of hearing. Regarding that comment, it is worth elucidating that, in the literature, it was not found national studies which point out salary discrepancies between people with normal levels of hearing and the deaf population. The fact that many deaf subjects earn between one and two minimum salaries meets national salary average. According to IBGE Census, 2015, over half of Brazilians earn less than a minimum salary per capita (IBGE, 2015). Brazilian minimum salary in 2019 is R$ 998.00, that is $ 260.

In this regard, a research which was held in Australia by Willoughby (2011) has elucidated that some deaf individuals in that study revealed that they have had the same position in their job and earned unequal salaries because they do not have the same level of access to information and communication as people with normal levels of hearing. The study by Perkins-Dock et al. (2015) with 224 deaf participants from a Southern city located in the United States, also has showed that communication disabilities and lack of assistive technologies at workplace preclude the deaf from getting higher job positions and salaries.

It seems that most deaf participants in our study despite their lower salaries are satisfied with their jobs. Most of the employed ones do not have access to information and communication by sign language. Sample participants were asked how they interact with people with normal levels of hearing at workplace. Six, or 10%, answered that they interact orally, as their co-workers did not know sign language. Eight participants, 13.33%, explained that they use writing Portuguese language at their workplace. It should be clarified that those participants who use Portuguese language inside their jobs earned over four salaries, work at universities and had at least Higher Education. That fact seems to show that the use of written Portuguese language may be a differential for better job positions and salaries, thus facilitating accessibility at workplace. It´s important to notice that 39 participants that earn between one and four minimum salaries do not use Portuguese language inside their jobs, they probably must have less access to communication and information in this environment.

This data matches with another Brazilian study from Guarinello et al. (2017), which shows that many Brazilian deaf have difficulties in the use of the written language. The authors also reveal that the use of the Portuguese language by means of more effective social practices may improve deaf individuals' quality of life. Furthermore, Lustosa et al. (2016) point out that the use of reading and writing is essential not only in daily life, but also for the appropriation of not-daily productions in human existence. The authors still observe that, in a literate society, the achievement of full citizenship demands the mastery of reading and writing, once it is the way that individuals may privilegedly get appropriated from the information and knowledge produced by mankind.

Even though 29 participants have reported that they have had good or very good oral language skills and 49 have affirmed that they have a reasonable or good writing skills, most of them do not use this language at work, perhaps because they have low levels of literacy. Willoughby (2011) also points out, in his study, that many Australian deaf individuals have low levels of literacy, which harms them at workplace, especially regarding the use of eletronic communication based on written texts. The author explains that the researched deaf suffered from prejudice at their workplace. It appears that, countries, like Brazil, should invest more heavily on support services to the deaf, by means of specialized teachers, who mediated reading and writing learning, so that deaf people could get better jobs and salaries.

Significant results were found when oral and written language questions where crossed with salaries, so best results for orality and writing skills occur among higher salaries.

Regarding occupation and schooling, it was perceived by participants' answers that most of them were graduated or post-graduated. Among the graduated deaf participants, one attended Computer Science; one, Mathematics; two, Physical Education; one, Psychology; two are graduated from Business; five from Education; and seven from Language-Libras[3]. As for post-graduation, only four deaf participants had such

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an educational level; all the others had specialization in special education. The participants, who told that they had a master degree, took this degree in Education.

It should be clarified that during their education, most participants relied on the presence of an interpreter of sign language. Such participants also answered how they interacted with their teachers at school; 43.33% (n=26) reported the use of writing to interact with their teacher, and 36.67% (n=22) used speech. It should also be observed that 28.33% (n=17) of the deaf were mediated by one sign language interpreter.

Many participants pointed out that they did not have sign language interpreters during elementary and middle school, that probably occurred because, at the time they attended school, the presence of such a professional in the classroom was not mandatory in Brazil. It became mandatory in the country in 2002, due to the Libras Law, which assured the action scope of those professionals in all educational levels. It is agreed that the legal obligation of the presence of that professional enables deaf individuals to interact with the greatest possible number of people in the institutions that they attend (Silva, 2016).

Also, in that regard, studies show that the mediation with the interpreter can improved deaf individuals' QOL, (Schubert, 2012; Silva, 2016), during their educational process.

Apart from the fact that many participants in this study had the help of an interpreter during their school years, it should also be pointed out that over half of this sample has Higher Education, which is a restricted condition to a small share of the Brazilian population. According to data from the National Research of Residences by IBGE (2015), only 16% of Brazilian professionals have Higher Education. Moreover, three out of 10 people from Brazilian labour force do not even conclude middle school (IBGE, 2015).

Probably the lack of interpreters during their school's years justifies the fact that many participants have answered that they use either written or oral language with their teachers of schools. Despite that, it is necessary to point out that most Brazilian population features limited levels of literacy, even those who attend Higher Education. Research by Lustosa et al. (2016), in which the authors analyzed the practices of literacy from beginners and graduated at a Higher Education institution, elucidates that many hearing students had difficulties in the use of reading and writing in daily practices, regarding the primary genres. Such genres, according to the research, should be acquired until the 9th grade of Middle School. This study also shows that the entrance in Higher Education of Brazilians from different social classes unveils that the greatest part of this population has literacy difficulties (Lustosa et al., 2016).

Difficulties in reading and writing are not only deaf people´s, it extended to the whole Brazilian population. Moreover, it should be clarified that despite the considerable increase in the number of enrolments in Higher Education in the past years, data from the Indicator of Functional Literacy (INAF, 2016) evidence that the population schooling level does not match the gains in the skill domains of reading and writing (Instituto Abramundo, 2014).

Significant results were found in our study when crossing data between orality, writing and schooling, best results in orality and writing occur by enhancing schooling.

The participants were also questioned on their views about themselves regarding the use of Libras and Portuguese language, and the use of Libras by their family members. In this aspect, the results point out that most participants refer to make a reasonable or good use of the Portuguese language, in the oral and writing modes.

The answers in this study have shown that the deaf individuals that self-reported to have good skills in orality and writing were exactly those who had better schooling and better answers in the QOL scoring. Participants answers also indicate that despite these deaf individuals being users of Libras, most of their family members do not use that language. Some of them point out that their parents have a tendency to use only the oral language to communicate, even banning sign language.

About that, Witkoski (2009) has revealed that it is still common in families with normal hearing levels, the obstination on spoken language and reading training as a normalization measure, disregarding identity formation, cognitive and psychic development of the deaf subject.

Concerning the use of the Sign Language by hearing family of deaf subjects, Guarinello et al. (2013), in their study, has clarified that many parents feel not able of taking care of their deaf children, and they often search for help, but do not get appropriate information. Their study reveals that many parents had a lack of explanation on what deafness is and its consequences; in general, they do not use sign language and opt for orality, often guided by professionals who points out only the importance of the oral language to the deaf children (Guarinello et al., 2013).

It is essencial to highlight the family on language appropriation process and quality of life of their children. Some studies show that if families had early access to sign language, their linguistic interactions with their deaf children would be more effective (Hyde & Punch, 2011; Chaveiro, 2011; Novogrodsky et al, 2014; Garcia, 2016; Hrastinski & Wilbur, 2016). Despite of that, the current research reveals that most parents do not use sign language, so most deaf people only learn this language at school.

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Thinking about changing this hard situation, it is understood that Brazilian public policies shoud prioritize family empowerment in the linguistic development of their children, therefore, Brazilian states should assure families the access to Libras by means of actions prioritizing the use of this language, and its importance as the second oficial language in the country. It is perceived that despite the recognition of the sign language in the Brazilian education policies, there is still the prevalence of monolingual practices in the country, which only prioritize the use of the Portuguese language (Guarinello et al, 2009).

In relation to the Environment domain, the worst scored evaluated by participants in this research, questions *Q8* and *Q9 How safe are you in your daily life? How healthy is your physical environment? (Climate, noise, pollution, attractions)*, were the ones in which most participants had lower scores.

In questions *(Q13) How available is for you the information you need in your daily life?* And *(Q24) How satisfied are you with your access to health care services?* data shows that the deaf participants are not satisfied with their access to information, safety and healthcare services. It can be inferred that this occurs because that share of population, in general, has been facing difficulties to perform daily activities due to the lack of interpreters and, mainly, access to the healthcare area, similar data was reported by other studies (Black & Glickman, 2006; Zöller & Archer, 2015; Gerich & Fellinger, 2012; Garcia, 2016).

Moreover, it is worth pointing out that Brazilian legislation, Law 13.146/15 determined that public services concessionaires should assure institutional ways to support the use and dissemination of Libras as the means of an objective communication (Brasil, 2015). Despite the legislation, there is still a lot to be done regarding deaf accessibility to society, once most of institutions do not provide information to the deaf, either by means of the written language (legends) or Libras (Brasil, 2015).

The lowest scoring evidenced in the questions on the Environment was also found in other studies (Garcia, 2016; Chaveiro, 2011; Hintermair, 2011; Gerich & Fellinger, 2012; Marinho & Vieira, 2015), which show that some factors related to the enviornment affect deaf individuals QOL, such as the lack of sewage system and healthcare services, lack of accessibility to leisure, money and means of transport, among others.

It can also be infered that the negative answers to the question related to leisure activities may have relation to money shortage and low salaries from part of this sample.

Similar results regarding the environment domain were also perceived in other Brazilian studies with other samples, such as, teachers. Penteado & Pereira (2007) have explained that, in this domain, teachers' devaluing job is evidenced, as in Brazil, they generally have scarce salary to their needs, which makes their possibilities of personal, social and professional investment decrease. Like this study, several participants' job in our sample are in the educational field, which has been suffering salary downsizing, professional scarcity and disqualification in Brazil.

In our study, it is perceived that a considerable part of the sample evidences satisfactory levels of literacy and education. Thus, many participants refer to themselves as bilingual, as they consider that they have proficiency in the use of Portuguese language, in the oral and writing modes, and in Libras for their social interaction. That seems to show that the use of the Portuguese language, in addition to the sign language, is one of the factors that may improve the quality of life for this share of the population.

Similar findings were evidenced in a research by Hrastinski & Wilbur (2016), whose results unveil that deaf students, proficient in the sign language and in English, presented better answers than their less fluent colleagues in tests of reading comprehension in English, as well as evaluations on the use of the English language. Those authors have observed that a bilingual environment is essential for the deaf to have a more favorable academic development.

Based on the presented findings, it is possible to consider that higher educational level, best salaries associated with better use of Portuguese language could be considered as factors that can influence a higher QOL.

It is crucial to notice that the WHOQOL-Bref instrument used in this study is a general instrument for quality of life used for all sorts of population, so further studies should be developed QOL instruments especially to deaf sign language users, which can contemplate their culture, educational and social aspects of life.

Despite such limitations, the WHOQOL-Bref does not miss its value as a feasible instrument for the QOL perception, especially when used with other instruments that enable to a deep discussion.

V. Conclusion

By analyzing the key research question, which factors influence the quality of life among the deaf sign language users population, it was noticed that the best scores of QoL in this group are related to the proficiency in the Portuguese language, in addition to earning the best salaries and higher education. It was also observed that low earnings prevail in great part of the sample, even among those with Higher Education. Moreover, it was perceived that the lower the schooling, the worse is QoL perception.

Despite many participants are reasonably satisfied with their quality of life, it can be noticed by

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their answers, especially in the environment domain, that aspects related to jobs, healthcare services, safety and leisure are unfavorable. These factors should be considered while planning and implementing health promotion actions toward the studied community.

It deems to elucidate that, in Brazil, despite the broad formulation of public policies to support deaf individuals accessibility, such as the Libras Law (Brasil, 2012), and the Law of Accessibility (Brasil, 2015), there are still many hurdles that this population have to overtake to access some social and cultural institutions. So, it is vital to invest in public policies and affirmative actions to reduce inequality conditions and also get rid of communication obstacles, which prevent their participation in society.

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Endnotes

[1] In Brazil there are three main Brazilian sign language proficiency certifications: PROLIBRAS – National certification from Education Ministry, CAS – Southern Brazil certification and FENEIS – Deaf Federation´s certificate. The researcher has all of them.

[2] Brazilian minimum salary in 2019 is R$ 998.00, equivalent to about US$260.00.

[3.] Graduation at Higher Education level, offered as Baccalaureate or Teaching Lincensing. Training, focusing on Libras objectifies to qualify professionals for using and teaching the different manifestations of the language, focusing on basic education and interpretation of the Brazilian Sign Language in several segments of the society.

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