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Original Article

Well-being and facial motor impairment in patients with peripheral facial paralysis: a cross-sectional study

Bem-estar e comprometimento motor facial em pacientes com paralisia facial periférica: um estudo transversal

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ABSTRACT | INTRODUCTION: Peripheral Facial Paralysis (PFP) is the result of facial nerve dysfunction. The inability to move the face has social and functional consequences for the patient. **OBJECTIVE:** To analyze the relationship between facial motor impairment and well-being in patients with Peripheral Facial Paralysis (PFP). **METHOD:** This is a descriptive, observational, cross-sectional study. The eligibility criteria consisted of having a diagnosis of facial paralysis and being seen at the FACISA School of Physiotherapy clinic. The sample consisted of 20 people affected by PFP. The patients were evaluated by a socio-demographic data sheet and by the instruments: House-Brackmann Scale (HB) and Facial Impairment Index (IIF). Spearman's correlation coefficient was used to analyze the degree of correlation between HB, IF and injury time. **RESULTS:** The participants were 65% female, the median age was 50.5 years, the injury time was 3 to 331 days (median 17.5 days), the predominant etiology was idiopathic 65%, and both hemifaces were affected in equal proportion (50%). As for the clinical characteristics of PFP, the level of facial motor impairment graded by the HB scale obtained a median of 4, the IFF-physics obtained a median of 60. IFF-social function obtained a median of 38. In the correlations between HB, injury time and IFF, it was observed that the values obtained indicated that there were no statistically significant correlations. **CONCLUSION:** Even though the level of facial motor impairment is marked, there was no correlation with the participants' well-being.

KEYWORDS: Facial paralysis. Sickness impact profile. Facial nerve.

RESUMO | INTRODUÇÃO: A Paralisia Facial Periférica (PFP) é resultante da disfunção do nervo facial. A incapacidade de mover o rosto tem consequências sociais e funcionais para o paciente. **OBJETIVO:** Analisar a relação entre comprometimento motor facial e bem estar em pacientes com PFP. **MÉTODO:** Trata-se de uma pesquisa de caráter descritivo, observacional, do tipo transversal. Os critérios de elegibilidade consistiam em ter diagnóstico de paralisia facial e estar sendo atendido na clínica escola de Fisioterapia da FACISA. A amostra foi constituída por 20 pessoas com PFP. Os pacientes foram avaliados por uma ficha de avaliação sociodemográfica e pelos instrumentos: Escala de House-Brackmann (HB) e o Índice de Incapacidade Facial (IIF).Utilizou-se o coeficiente de correlação de Spearman para analisar o grau de correlação entre HB, IF e o tempo de lesão. **RESULTADOS:** Os participantes foram 65% do sexo feminino, a mediana da idade foi de 50,5 anos, o tempo de lesão foi de 3 a 331 dias (mediana 17,5 dias), a etiologia predominante foi idiopática 65%, e ambas hemifaces foram acometidas em igual proporção (50%). Quanto as características clínicas da PFP, o nível de comprometimento motor facial graduado pela escala de HB obteve mediana 4, o IFF-física obteve mediana 60. IFF-função social obteve mediana 38. Nas correlações entre HB, tempo de lesão e IFF, foi observado que os valores obtidos indicaram que não houve correlações estatisticamente significantes. **CONCLUSÃO:** Mesmo que o nível de comprometimento motor facial esteja acentuado, não houve correlação com o bem-estar dos participantes.

PALAVRAS-CHAVE: Paralisia facial. Perfil de impacto da doença. Nervo facial.

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Introduction

Peripheral Facial Paralysis (PFP) is due to a dysfunction of the VII facial nerve. Although patients may have a history of a wide variety of congenital or acquired diseases, the most common etiology is idiopathic, known as Bell's palsy[1]. Among the manifestations of PFP, we can highlight facial asymmetry, difficulties in speaking, eating and involuntary spasms[2].

Disability caused by paralysis has significant effects on physical and social functions related to the face[3,4], especially in individual identity, body image and social interaction, affecting the functional capacity and quality of life of those affected[5,6]. Individuals affected by PFP report complaints related to physical appearance, which limit them to practice simple activities of daily living, due to impairment in functional aspects and the great influence on self esteem and emotional issues, which results in social isolation[7,8].

In clinical practice, the assessment of the degree of paralysis is measured only using scales that grade the level of motor impairment of the disease. Despite describing the severity of the paralysis, these questionnaires do not assess how the disease affects patients' quality of life. Therefore, the use of specific and validated instruments to measure the impact of non-motor impairments of paralysis becomes an important item in evaluation processes, as it captures the patient's perspective on the disease[9,10].

Due to fewer studies that relate to PFP with the repercussions on quality of life, mainly in the area of Physiotherapy, the objective of this study is to analyze the relationship between facial motor impairment and well-being in post-peripheral facial paralysis subjects.

Method

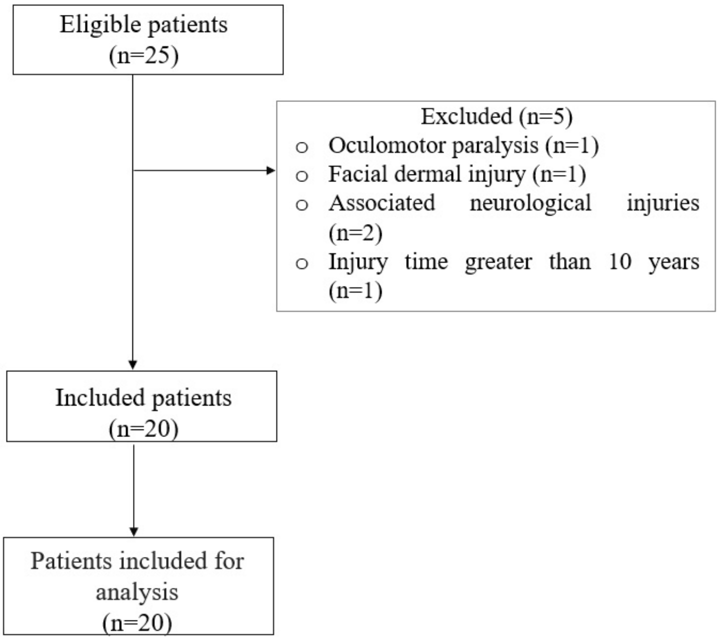
This is a descriptive, observational, cross-sectional study with a quantitative approach, following guidelines for observational studies (STROBE).The recruitment period started in June, 2014 and concluded in July, 2016. Selected by convenience, the participants were affected by PFP and residing in Santa Cruz-RN (Brazil) or in the outskirts area. The research was carried out at the Outpatient Physiotherapy Service, from the Faculty of Health Sciences at Trairi (FACISA) / Federal University of Rio Grande do Norte (UFRN). The study was approved by the Human Research Ethics Committee (CEP-FACISA), with registration CAAE: 37351014.4.0000.5568 (#901.365/2014).

The eligibility criteria consisted of clinical diagnosis of facial paralysis and undergoing physical therapy in the FACISA Outpatient Physiotherapy Service.

The study sample consisted of 25 individuals, of which five were excluded for not meeting the eligibility criteria, as shown in figure 1. Thus, the final sample was composed of 20 individuals.

As inclusion criteria, individuals had to have a clinical diagnosis of PFP, age above 18 years and understand simple orders. Exclusion criteria were chronic injuries over 1 year, present major facial dermal lesions and other associated neurological lesions.

Figure 1. Flowchart of patient sample



Patients were invited to participate in a single individual assessment during at least 30 minutes. The evaluations were carried out in an individual room and with acoustic protection. Only one examiner, trained to apply the scales, performed the evaluation.

The individuals were assessed by the sociodemographic assessment form, the motor assessment was performed using the House-Brackmann Scale (HB) and facial well-being and disability by the Facial Disability Index (FDI)[11]. The sociodemographic evaluation form was composed of the following data: name, age, sex, race, education, address, telephone, clinical data, history of current disease, pathological history, time of injury, clinical diagnosis and use of medications.

The House-Brackmann scale assesses facial symmetry at rest, degree of movement of facial muscles and synkinesis caused by specific voluntary movements[12]. It is the scale most used clinically, being measured by an ordinal scale of six graduations. Score one is related to no facial impairment, and six is related to totally compromised patients[13].

The Facial Disability Index is a self-assessment questionnaire that lists physical disability and psychosocial factors for assessing the daily life experience of patients with facial motricity disorders. The survey has two domains: the first assesses the Physical Function Index, being composed of five questions that assess the chewing, swallowing, speech, tearing and dryness of the eye, with degrees of difficulty scored from zero to five, in which zero corresponds to the maximum degree of difficulty, and five corresponds to the minimum degree of difficulty; the second domain is the Social Function Index, it consists of five questions that assess social isolation, activity and participation, tranquility, irritation and sleep disruption. The degrees of difficulty range from six to one, with scores one to the maximum and six to the minimum of well-being[11].

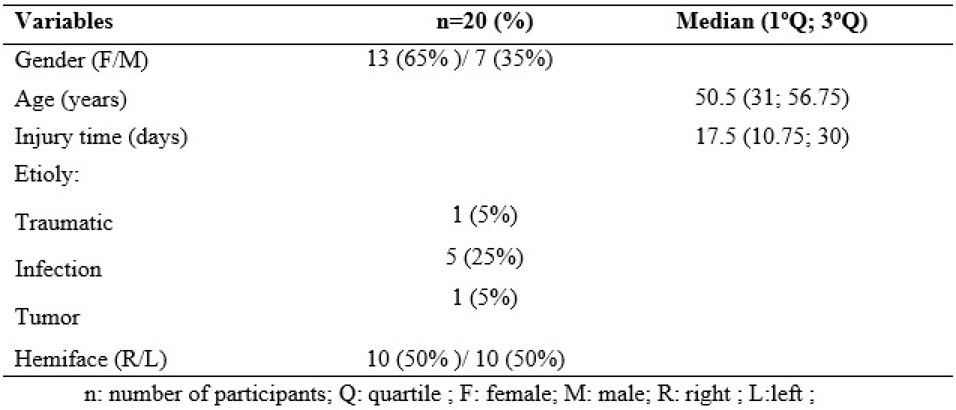
For data analysis, the instrument scores and measures used for each patient were initially tabulated in Excel. Subsequently, quantitative data were stored and analyzed using the BioEstat 5.3 program. The normality of the values was verified using the Shapiro-Wilk test ($p>0.05$), which were characterized as non-parametric ($p <0.05$). The numerical variables were expressed as measures of central tendency, the median, and dispersion, the first quartile (1Q) and the third quartile (3Q), and the categorical ones, in turn, in frequency and percentage. The Spearman correlation coefficient was used to analyze the degree of correlation between the House-Brackmann scale, the Facial Disability Index and the time of injury (in days), adopting a significance level of $p <0.05$.

Our results will be justified according to Portney[14] who classifies the correlation values between 0.00-0.25 indicating little or no correlation, between 0.25 and 0.50 indicates a small degree of correlation, between 0.50 and 0.75 indicates a moderate or good degree of correlation, and values above 0.75 are considered to be an excellent correlation.

Results

Regarding the demographic characteristics of the participants, 65% are female and the median age was 50.5 years. The reported injury time had a median of 17.5 days, the predominant etiology was idiopathic (65%), and both hemifaces were affected in an equal proportion (table 1).

Table 1. Demographic and clinical characteristics of patients with PFP

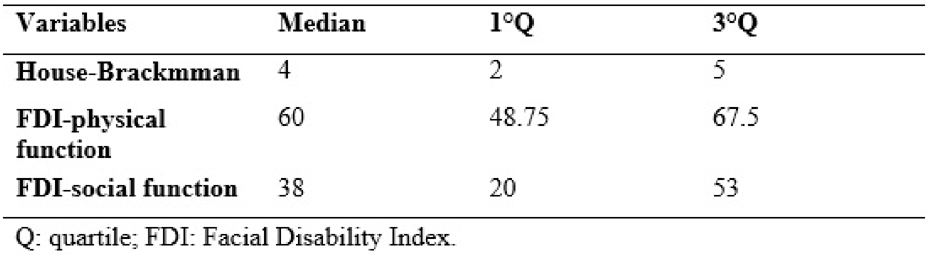


Variables	**n=20 (%)**	**Median (1ºQ; 3ºQ)**
Gender (F/M)	13 (65%)/ 7 (35%)	
Age (years)		50.5 (31; 56.75)
Injury time (days)		17.5 (10.75; 30)
Etioly:		
Traumatic	1 (5%)	
Infection	5 (25%)	
Tumor	1 (5%)	
Hemiface (R/L)	10 (50%)/ 10 (50%)	

n: number of participants; Q: quartile ; F: female; M: male; R: right ; L:left ;

As for the level of facial motor impairment graded by the House-Brackmann scale, it obtained a median of 4, classifying it as an important moderate dysfunction. The Facial Disability Index (FDI) in physical function had a median of 60, considering that the score is 0-100 points, and the higher the score obtained, the better the functionality, so we obtained a physical function considered as intermediate. The social function had a median of 38, the score is 0-100 points, considering that the lower the score the better the social performance, we obtained a good result in relation to social well-being (table 2).

Table 2. Clinical characteristics of the sample of patients with PFP (n = 20)



Variables	**Median**	**1ºQ**	**3ºQ**
House-Brackmman	4	2	5
FDI-physical function	60	48.75	67.5
FDI-social function	38	20	53

Q: quartile; FDI: Facial Disability Index.

Regarding the correlations between HB, time of injury and FDI (table 3), it was observed no statistically significant correlations.

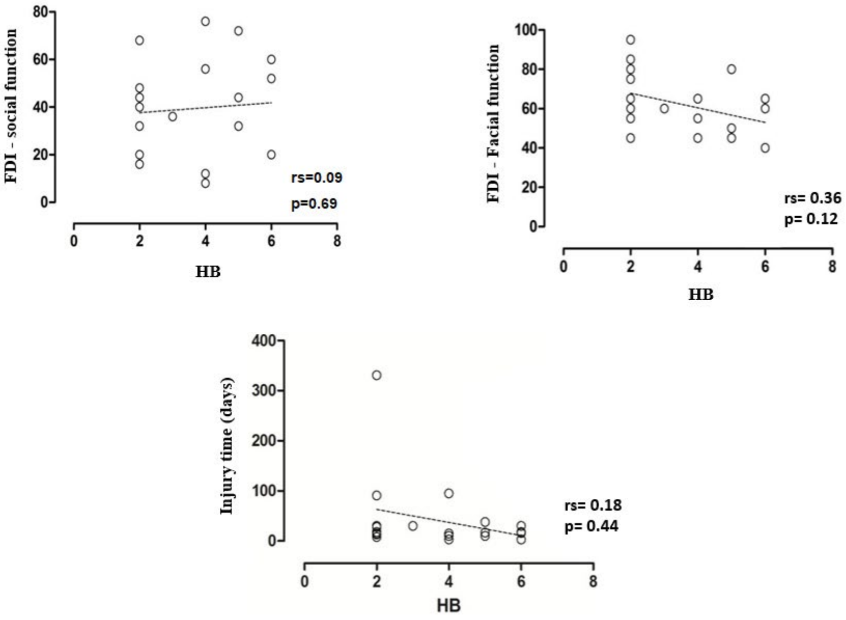
Table 3. Correlations between HB, injury time and FDI of patients with PFP (n = 20)

Correlation	rs	p-value
HB x Injury time (days)	-0.18	0.44
HB x FDI-physical function	-0.36	0.12
HB x FDI-social function	0.09	0.69

HB: House-Brackmann scale; FDI: Facial Disability Index; rs:correlation coefficient; p*<0.05.

In the correlation between HB and the FDI-social function, the value was positive (rs = 0.09, p = 0.69), but with little or no correlation. There were no correlations between HB and the FDI-physical function (rs = -0.36, p = 0.12), and HB and the time of injury (rs = -0.18, p = 0.44) (Figure 1).

Figure 2. Correlation between HB and FDI-social function in patients with PFP (n = 20) (Figure 2A). Correlation between HB and FDI-facial function in patients with PFP (n = 20) (Figure 2B). Correlation between HB and injury time in patients with PFP (n = 20) (Figure 2C). PFP: Peripheral Facial Paralysis; rs: correlation coefficient; p: p-value.



HB: House-Brackmann scale ; FDI: Facial Disability Index; rs:correlation coefficient ; p*<0.05.

Discussion

The aim of the study was to verify the relationship between facial motor impairment and well-being in patients with peripheral facial paralysis. Our results demonstrate that there is no correlation between the degree of facial motor impairment, measured by HB and well-being, measured by FDI, in patients with PFP.

Regarding the injury time, the sample was completed by injuries in the period from 3 to 331 days. Thus, although the degree of facial motor impairment does not correlate with the time of injury, in which it can often be observed that in chronic cases the degree of impairment can be greater, since in the acute phase, possible sequelae resulting from the disease are not yet well established and the prognosis is more favorable. In addition, factors such as etiology, age, laterality and gender can also be predictive factors of quality of life in this public[5,15,16].

Our research consisted mainly of patients with idiopathic facial paralysis, about 65% of the sample. This particularity may have had an impact on the results found in this work, since Bell's palsy is an event that has a benign course in most cases and has a better prognosis, which tends to recover more quickly (potentially <1 month) and early treatment, increases the chances of a complete recovery, which may reflect in better wellness scores[17-19]. Nellis et al.[20] in his research showed the association between depression and quality of life in patients with facial paralysis when compared to a control group, even using non-disease-specific questionnaires.

Studies such as those by Díaz-Aristizabal et al.[5,15]demonstrated that the severity of PFP has a direct correlation with disability and well-being, showing that this public does not only suffer from motor disabilities, but they also suffer severely from social and psychological issues. However, the injury time of the patients evaluated in these surveys was chronic, which differs from our sample, which includes a period of up to one year of injury.

Santos and Guedes[21] evaluated 12 individuals with an injury time greater than three months, using the HB scale and the face assessment questionnaire. In this study, respondents with Bell's PFP were asked whether there was a loss in social and professional activities, the following results were found: 55.6% of the individuals did not report any damage to the HB grade I-II group and 44.4% reported a lot of damage. In the PFP by Schwannoma 66.7% of the individuals reported no damage also for the group of grades I-II, and 33.3% a lot of damage. Acquired chronic peripheral facial palsy interfered with the quality of life of individuals with degrees considered more severe. This study differs from ours in terms of the period that the assessment was made, because in a more acute period there could be a change in the results, according to the face evaluation questionnaire.

The degree of motor impairment on the HB scale obtains scores consistent with the FDI-social function, because the lower the score obtained in the social function, the higher the quality of life, and the lower the HB score, the lower the motor impairment. Between HB and FDI-facial function, the opposite occurs, because the lower the score obtained in physical function, meaning greater difficulty in relation to the functions of eating, drinking, speaking, dryness/watery eyes and mouth cleaning, and the lower the HB score, the lower the level of motor impairment. Thus, the results obtained between these correlations are justified, and patients will experience these correlations individually, since the FDI is a self-report questionnaire for each patient, and that the reality faced differs according to the social situation and the therapeutic assistance available in the environment in which the patient is inserted.

Although our findings did not point to a significant correlation between the degree of impairment and the well-being of patients, understanding this association can predict more accurate results on non-motor disabilities in this population and can help minimize the impact of PFP on patients' well-being. In this way, it is possible to optimize the processes of evaluation and clinical decision-making, so that they pay attention to conditions that extend beyond the functions and structures of the body[20,22].

We can say that even if the level of facial motor impairment is marked, it may not necessarily affect people's well-being, depending on social reality, seeking treatments or personal satisfaction for each individual. In addition, the different periods of the disease (acute and chronic), can have different impacts on the patient's well-being, this particularity has become a limitation of our study. Thus, we must consider the patient's report and how the pathology is affecting their life.

Conclusion

Even though the level of facial motor impairment is marked, there was no correlation with the participants' well-being.

Author contributions

Medeiros SFD, Silva RCS e Cirne GNM participated in the conception, design and collection of research data. Lima NMFV e Cacho EWA participated in the statistical analysis of the research data. Carvalho ABC e Cacho RO participated in the interpretation of results and writing of the scientific article.

Competing interests

No financial, legal or political competing interests with third parties (government, commercial, private foundation, etc.) were disclosed for any aspect of the submitted work (including but not limited to grants, data monitoring board, study design, manuscript preparation, statistical analysis, etc.).

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