

# Self-perception of facial paralysis and sociodemographic-clinical conditions of post-acute stroke patients: association analysis

Autopercepção da paralisia facial e condições sociodemográficas-clínicas de pacientes pós-AVC agudo: uma análise de associação

Autopercepción de pacientes agudos faciales y condiciones sociodemográficas-clínicas posteriores post-accidente cerebrovascular en la fase aguda un análisis de asociación de pacientes

Raquel Karoline Gonçalves Amaral\* 

Aline Mansueto Mourão\* 

Simone Rosa Barreto\* 

Tatiana Chaves Simões\*\* 

Laelia Cristina Caseiro Vicente\* 

## Abstract

**Introduction:** Facial palsy is one of the most common sequelae in post-stroke patients, bringing a series of negative consequences for self-perception. **Objective:** To evaluate patients' self-perception regarding facial palsy after acute stroke and verify if it is related to sociodemographic and clinical conditions. **Method:** This is a descriptive observational study with 86 patients with facial paralysis after acute stroke admitted to a public hospital. The inclusion criteria were age over 18 years, Glasgow

\* Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil.

\*\* Hospital Risoleta Tolentino Neves, Belo Horizonte, MG, Brazil.

### Authors' contributions:

RKGA, SRB: Research planning, data collection and analysis, and manuscript writing.

AMM, TCS, LCCV: Research planning, data analysis, and manuscript writing.

**Correspondence email address:** Raquel Karoline Gonçalves Amaral - raquelkaroline21@gmail.com

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scale above 13 and preserved understanding. Socio-demographic and clinical data were extracted from the medical records. Facial mimicry was assessed using the House & Brackmann protocol (1985) and self-perception of physical and psychosocial discomfort using the facial condition self-assessment questionnaire. Descriptive and association analyses were performed with statistical significance of 5%. **Results:** The degree of impairment of facial paralysis varied from moderate to total paralysis. Most patients rated the resting face as good, face movement as very bad and bad, with the lips being the worst rated. The patients reported a lot of damage in social activities, a lot of dissatisfaction with the face and medium impairment on eating. The association analysis revealed that self-perception of the face at rest is associated with sex and neurological impairment. **Conclusion:** Patients in the acute phase of stroke have a self-perception that facial paralysis impacts on lip movement and psychosocial activities, being worse for women and those with moderate and severe neurological impairment.

**Keywords:** Stroke; Self Concept; Facial Paralysis; Facial Expression and Psychosocial Impact .

## Resumo

**Introdução:** A Paralisia Facial é uma das sequelas mais comuns em pacientes pós- Acidente Vascular Cerebral, podendo ocasionar uma série de consequências negativas para autopercepção. **Objetivos:** Avaliar autopercepção dos pacientes quanto à paralisia facial pós-Acidente Vascular Cerebral na fase aguda e verificar se está relacionada às condições sociodemográficas e clínicas. **Método:** Trata-se de estudo descritivo observacional com 86 pacientes com paralisia facial pós-Acidente Vascular Cerebral. Os critérios de inclusão foram idade acima de 18 anos, escala de Glasgow maior que 13 e compreensão preservada. Dados sócio-demográficos e clínicos foram extraídos do prontuário. A mímica facial foi avaliada com protocolo House & Brackmann (1985) e a autopercepção quanto aos incômodos físicos e psicossociais pelo questionário de auto-avaliação da condição facial. Foram realizadas análises descritiva e de associação com significância estatística de 5%. **Resultados:** O grau de comprometimento da paralisia facial variou entre moderado a paralisia total. A maioria dos pacientes avaliou a face em repouso como boa, movimento da face como péssima e ruim, sendo os lábios com pior classificação. Os pacientes relataram muito prejuízo nas atividades sociais, muita insatisfação com a face e médio prejuízo da alimentação. A análise de associação revelou que a autopercepção da face em repouso está associada ao sexo e ao comprometimento neurológico. **Conclusão:** Os pacientes na fase aguda do Acidente Vascular Cerebral possuem autopercepção de que a paralisia facial impacta no movimento dos lábios e atividades psicossociais, sendo pior para as mulheres e naqueles com o nível de comprometimento neurológico moderado e grave.

**Palavras-chave:** Acidente Vascular Cerebral; Autoimagem; Paralisia facial; Expressão facial e Impacto Psicossocial.

## Resumen

**Introducción:** La parálisis facial es una de las secuelas más comunes en pacientes post-accidente cerebrovascular, que puede causar una serie de consecuencias negativas para la auto-percepción. **Objetivos:** Evaluar la auto-percepción de los pacientes con respecto a la parálisis facial después del accidente cerebrovascular en la fase aguda y verificar si está relacionada con condiciones sociodemográficas y clínicas. **Método:** Este es un estudio descriptivo observacional con 86 pacientes con parálisis facial después del accidente cerebrovascular. Los criterios de inclusión tenían una edad superior a los 18 años, glasgow escalaba más de 13 y se conservaba la comprensión. Los datos sociodemográficos y clínicos se extrajeron de los registros médicos. El mimetismo facial fue evaluado usando el protocolo house & brackmann (1985) y la auto-percepción de las molestias físicas y psicosociales explora la autoevaluación de la condición facial. Se realizaron análisis descriptivos y asociativos con una significación estadística del 5%. **Resultados:** El grado de afectación de la parálisis facial osciló entre la parálisis moderada y total. La mayoría de los pacientes calificaron la cara en reposo como buena, el movimiento facial como malo y malo, siendo los labios los peor valorados. Los pacientes reportaron mucho deterioro en las actividades sociales, mucha insatisfacción con el deterioro facial y medio de los alimentos. El análisis de la asociación

reveló que la autopercepción de la cara en reposo se asocia con el sexo y el deterioro neurológico.

**Conclusión:** Los pacientes en la fase aguda del accidente cerebrovascular tienen la autopercepción de que la parálisis facial afecta el movimiento de los labios y las actividades psicosociales, siendo peor para las mujeres y aquellos con el nivel de deterioro neurológico moderado y grave.

**Palabras clave:** Accidente Cerebrovascular; Autoimagen; Parálisis Facial; Expresión Facial y Impacto Psicosocial.

## Introduction

Facial palsy (FP) is one of the most common post-stroke sequelae, present in more than half of the patients affected by this disease<sup>1</sup>. This change results from interrupted motor information at any point of the trajectory or in the central motor pathway of the facial nerve (cranial nerve VII) to the facial muscles<sup>2</sup>. FP may cause eating, mastication, swallowing, taste, salivation, and speech difficulties<sup>1</sup> and facial aesthetic dissatisfaction<sup>3,2</sup>, leading to a series of negative consequences in self-perception, emotional communication, and social interaction<sup>4,5</sup>. Post-stroke patients may have various physical, communicative, functional, sensitive, cognitive, or emotional sequelae that interfere with their self-perception<sup>6</sup>.

The complexity of the neurological impairment and individual particularities may lead post-stroke patients with FP to classify the severity of their palsy differently from professionals, due to biopsychosocial discomfort<sup>7</sup>. Some studies on peripheral FP (PFP) discuss the patients' and professionals' views of the degree of its impairment<sup>8</sup> – for instance, FP classified as mild by the speech-language-hearing therapist may have a severe physical and emotional impact on the patient's perspective<sup>9,10</sup>.

The literature presents questionnaires and scales as ways to assess the patients' self-perception of PFP<sup>9,3,11,12</sup>. Despite the diversity of instruments – e.g., Facial Paralysis Questionnaire (FPQ)<sup>3</sup>, Psychosocial Facial Appearance Scale (PFAS)<sup>11</sup>, Facial Clinimetric Evaluation Scale (FaCE)<sup>12</sup>, and the patients' facial condition self-assessment questionnaire<sup>9</sup> –, the patients' perspectives converge to a negative impact of PFP on facial expressions. The psychosocial impacts reported by the patients include their inability to express emotions (especially smiling and sadness)<sup>9</sup>, relationship difficulties with the partner or new acquaintances<sup>11</sup>, desire to get isolated during personal interactions<sup>9,11</sup>, and difficulties eating and communicating<sup>9,11,12</sup>.

Therefore, it is necessary to consider the patients' opinions and create post-stroke FP self-perception strategies. Neglecting this analysis can significantly impact psychosocial aspects, discouraging them to express themselves and making them more anxious and depressive<sup>5,8,10</sup>.

The patients' self-perception of their facial condition must be assessed in facial expression rehabilitation. It identifies priorities to treat what patients perceive as uncomfortable, ensuring their greater adherence, engagement, motivation, and attention in biopsychosocial intervention with effective therapeutic results<sup>14,9</sup>. Hence, it is essential to know the patients' self-perception of FP in the acute post-stroke phase to aid health professionals in the rehabilitation and guidance to patients regarding possible physical and psychosocial impairments<sup>9</sup>. This study aimed to assess patients' self-perception of FP in the acute post-stroke phase and verify whether self-perception is related to sociodemographic and clinical conditions.

## Method

This is a descriptive observational study of patients hospitalized at the stroke unit of a public hospital between October 2017 and August 2019. It was approved by the Research Ethics Committee of the Federal University of Minas Gerais under evaluation report number 3.082.696. All participants signed an informed consent form.

Patient recruitment began with an active search in the electronic medical records using the International Classification of Diseases ICD 10–I64 code (stroke, not specified as hemorrhage or infarction) to find all such hospitalized patients. Sociodemographic and clinical data were extracted from the medical records to analyze the inclusion criteria, defined as follows: patients diagnosed with stroke and FP in the acute phase of the disease (up to 7 days since ictus), above 18 years of age, adequate awareness level (at least 13 points on the Glasgow scale), and preserved comprehension. The exclu-

sion criteria were as follows: individuals with other craniofacial deformities, apraxia, comprehension aphasia, previous history of FP, or degenerative diseases, or who, despite the reasons, did not finish or undergo the study procedures.

Clinical data on the results of head computed tomography (head CT scan), type of stroke, location and extension of brain lesion, and severity of neurological impairment (with the National Institutes of Health Stroke Scale [NIHSS])<sup>13</sup> and functional deficit (with the Functional Independence Measure [FIM])<sup>14</sup> were also obtained from the medical records to describe the selected patients' profiles. All potential participants were screened to identify aphasia<sup>15,16</sup> and verify who could be included in the sample.

After the patient identification and inclusion stage, their facial expressions were assessed by a speech-language-hearing therapist experienced in the field of stroke. Facial symmetry was assessed both at rest and in movement, comparing the two sides of the face. For thoroughly investigating movements, participants were asked to make the following faces: scared, angry, sad, ugly smell, shutting the eyes gently, shutting the eyes strongly, open smile, closed-lip smile, pursed lips, and pouted lips<sup>17</sup>. Throughout the procedure, patients were sitting at their bedside, and facial symmetry assessment was recorded with a 13-MP Samsung Galaxy j7 mobile camera – 2160p video recording and 720 x 1520 resolution –, approximately 70 centimeters away from the participant, with natural light.

Then, the patients' facial condition self-assessment questionnaire<sup>9</sup> was administered in interviews to analyze how they perceived the physical and psychosocial discomfort regarding their faces. The patients were asked to classify on a Likert scale their opinion about 1) the impact of FP at rest; 2) forehead, eye, and lip movement; in these items, the scale ranged from 0 to 4 (respectively, from terrible to great); 3) impact on social activities and its degree; 4) dissatisfaction with their face on the day of the interview; and 5) impact on eating; in these items, the scale ranged from 0 to 3 (respectively, from none to much)<sup>9</sup>.

In the interview, the questions were read to the patients as written. When they had any questions,

the lead researcher gave examples. In the third question, the following examples of the impact on social and professional activities were given: shame, inferiority, or desire to get isolated in personal interactions.

The procedures for speech-language-hearing assessment of facial expressions and patients' self-assessment of facial condition were conducted on the same day.

The degree of FP impairment was classified with the House & Brackmann Scale (1985)<sup>18</sup>. Even though this scale was developed for PFP, it was used in this study because there is yet no specific scale for central FP. Moreover, a study verified strong intra- and interrater agreement with this scale<sup>19</sup>. The classification considered mainly the lower face, as they were post-stroke patients<sup>17</sup>.

For data analysis, the response variables were the self-perception of FP at rest, in movement, and regarding facial functions. However, given the three PFP variables (forehead, eyes, and lips) in the patients' facial condition self-assessment questionnaire<sup>9</sup>, the worst of the forehead, eye, and lip movement classifications was considered for statistical analysis. The explanatory variables were the sociodemographic (age, sex, educational attainment) and clinical data (NIHSS, FIM, and degree of FP).

Descriptive analysis was made with the frequency distribution of all categorical variables. Associations between the response and explanatory variables were analyzed with Fisher's Exact test and Monte Carlo estimates. The level of significance was set at 5%. Statistical analyses were made in IBM SPSS, version 24.

## Results

Most of the 86 patients included in the study were males (58.1%), less than 65 years old (62.8%), and had not finished middle school (38.4%). Ischemic stroke occurred more often (83.7%), as well as moderate neurological impairment on NIHSS (55.8%) and modified dependence with assistance in up to 50% of tasks in FIM (61.6%). The left side was the most affected by FP (66.9%), and the degree of post-stroke FP impairment ranged from moderate to total in 89.5% of the cases (Table 1).

**Table 1.** Sociodemographic and clinical sample characterization

		n	%
Sex	Males	50	58.1
	Females	36	41.9
Age (years)	Under 44	5	5.8
	44 to 55	19	22.1
	56 to 65	30	34.9
	66 to 75	20	23.3
	76 to 85	10	11.6
	Above 85	2	2.3
Educational attainment	Illiterate	9	10.5
	Middle school, not completed	33	38.4
	Middle school, completed	13	15.1
	High school, not completed	12	13.9
	High school graduate	18	20.9
	Higher education, not completed	1	1.2
DH	Ischemic stroke	72	83.7
	Hemorrhagic stroke	11	12.8
	Hemorrhagic transformation in ischemic stroke	3	3.5
NIHSS	Mild	21	24.4
	Moderate	48	55.8
	Severe	17	19.8
FIM	Total assistance	1	1.2
	Modified dependence with assistance in up to 50% of tasks	53	61.6
	Modified dependence with assistance in up to 25% of tasks	16	18.6
	Complete/modified independence	16	18.6
Side affected by facial palsy	Right	29	33.7
	Left	57	66.9
Degree of facial palsy	Mild dysfunction	9	10.5
	Moderate dysfunction	21	24.4
	Moderately severe dysfunction	19	22.1
	Severe dysfunction	24	27.9
	Total paralysis	13	15.1
	Total paralysis	13	15.1

Legend: n = subjects; DH = diagnostic hypothesis; NIHSS = National Institutes of Health Stroke Scale; FIM = Functional Independence Measure.hemorrágico; NIHSS=National Institutes of Health Stroke Scale; MIF=Medida de Independência Funcional.

In the facial condition self-assessment questionnaire, most participants assessed the face at rest as good (40.7%), forehead and eye movement as great (respectively 45.3% and 44.2%), and lip movement as fair (32.6%). Hence, lip movement had the worst classification of the three. None of the patients complained of synkineses or contractures (Table 2).

Regarding the psychosocial impact of FP – e.g., shame, inferiority, and desire to get isolated in personal interactions –, participants reported much social impact (34.9%), much dissatisfaction with their faces (36.0%), and an intermediate impact on eating (38.8) (Table 2).

**Table 2.** Patients' self-perception of physical and psychosocial discomfort caused by post-stroke facial palsy

		<b>N</b>	<b>%</b>
Face at rest	Terrible	17	19.8
	Bad	8	9.3
	Fair	20	23.3
	Good	35	40.7
	Great	6	7.0
Forehead movement	Terrible	9	10.5
	Bad	1	1.2
	Fair	9	10.5
	Good	28	32.6
Eye movement	Terrible	11	12.8
	Bad	1	1.7
	Fair	10	11.6
	Good	26	30.2
Lip movement	Terrible	26	30.2
	Bad	22	25.6
	Fair	28	32.6
	Good	8	9.3
Summary of movement	Terrible	27	31.4
	Bad	22	25.6
	Fair	27	31.4
	Good	8	9.3
Damage to social activities? ades sociais?	Terrible	2	2.3
	Bad	27	31.4
	Fair	27	31.4
	Good	8	9.3
Dissatisfaction with the face today?	Terrible	7	8.1
	Very little	9	10.5
	Little	15	17.4
	Significant	25	29.1
To what extent was your eating affected by facial palsy?	Much	30	34.9
	None	9	10.5
	Little	17	19.8
To what extent was your eating affected by facial palsy?	Some	29	33.7
	Much	31	36.0
	Not at all	21	24.4
	A little	9	10.5
To what extent was your eating affected by facial palsy?	Moderately	33	38.8
	Much	23	26.7

Legend: n = subjects.

In association analysis, the self-perception of the face at rest was associated only with sex and NIHSS. Patients with moderate and severe NIHSS assessed the face more negatively than those with a mild degree, and self-perception was worse among females than males (Table 3). Lip movement was also significantly associated with sex – women classified it worse than men (Table 4). The other variables were not associated with lip movement.

Data on the patients' self-perception of psychosocial discomfort (impact on eating and social and professional activities and dissatisfaction with their faces) was not associated with sociodemographic and clinical data (Table 4).

**Table 3.** Association between self-perception of the face at rest and the sociodemographic and clinical variables

		Terrible		Bad		Fair		Good		Great		
		n	%	n	%	n	%	n	%	n	%	
Age	Adults	7	41.2	4	50.0	10	50.0	16	45.7	1	16.7	0.7
	Older people	10	58.8	4	50.0	10	50.0	19	54.3	5	83.3	
Educational attainment	Illiterate	3	17.6	1	12.5	1	5.0	3	8.6	1	16.7	0.9
	Middle school, not completed	7	41.2	5	62.5	8	40.0	11	31.4	2	33.3	
	Middle school, completed	2	11.7	0	0.0	4	20.0	5	14.3	2	33.3	
	High school, not completed	2	11.7	1	12.5	3	15.0	6	17.2	0	0.0	
	High school graduate	3	17.6	1	12.5	4	20.0	9	25.7	1	16.7	
	Higher education, not completed	0	0.0	0	0.0	0	0.0	1	2.8	0	0.0	
Sex	Males	5	29.4	3	37.5	13	65.0	25	71.4	4	66.7	0.03
	Females	12	70.6	5	62.5	7	35.0	10	28.6	2	33.3	
NIHSS	Mild	0	0.0	3	37.5	8	40.0	9	25.7	1	16.6	0.002
	Moderate	11	64.7	1	12.5	11	55.0	22	62.8	3	50.0	
	Severe	6	35.3	4	50.0	1	5.0	4	11.4	2	33.3	
FIM	Total assistance	0	0.0	1	12.5	0	0.0	0	0.0	0	0.0	0.1
	Modified dependence with assistance in up to 50% of tasks	15	88.2	5	62.5	10	50.0	18	51.4	5	83.3	
	Modified dependence with assistance in up to 25% of tasks	2	11.7	1	12.5	5	25.0	8	22.8	0	0.0	
	Complete/modified independence	0	0.0	1	12.5	5	25.0	9	25.7	1	16.7	
Degree of facial palsy	Mild dysfunction	1	5.9	0	0.0	1	5.0	6	17.1	1	16.7	0.2
	Moderate dysfunction	1	5.9	3	37.5	6	30.0	11	31.4	0	0.0	
	Moderately severe dysfunction	4	23.5	0	0.0	4	20.0	9	25.7	2	33.3	
	Severe dysfunction	7	41.2	4	50.0	6	30.0	6	17.1	1	16.7	
	Total paralysis	4	23.5	1	12.5	3	15.0	3	8.6	2	33.3	

Legend: n = subjects; NIHSS = National Institutes of Health Stroke Scale; FIM = Functional Independence Measure.

(\*) Fisher Exact test – statistically significant when  $p < 0.05$



**Table 4.** Association between self-perception of lip movement and the sociodemographic and clinical variables

		Terrible		Bad		Fair		Good		Great		
		n	%	n	%	n	%	n	%	n	%	
Age	Adults	10	38.5	14	63.6	10	35.7	3	37.5	1	50.0	0.3
	Older people	16	61.5	8	36.4	18	64.3	5	62.5	1	50.0	
Educational attainment	Illiterate	3	11.5	2	9.1	4	14.3	0	0.0	0	0.0	0.4
	Middle school, not completed	11	42.3	6	27.3	13	46.4	2	25.0	1	50.0	
	Middle school, completed	2	7.7	4	18.2	5	17.8	1	12.5	1	50.0	
	High school, not completed	6	23.1	4	18.2	1	3.6	1	12.5	0	0.0	
	High school graduate	3	11.5	6	27.7	5	17.8	4	50.0	0	0.0	
	Higher education, not completed	1	3.8	0	0.0	0	0.0	0	0.0	0	0.0	
Sex	Males	9	34.6	13	59.1	20	71.4	6	75.0	2	100.0	0.04
	Females	17	65.4	9	40.9	8	28.6	2	25.0	0	0.0	
NIHSS	Mild	3	11.5	4	18.2	11	39.3	1	12.5	2	100.0	0.08
	Moderate	16	61.5	15	68.2	13	46.4	4	50.0	0	0.0	
	Severe	7	26.9	3	13.6	4	14.3	3	37.5	0	0.0	
FIM	Total assistance	1	3.8	0	0.0	0	0.0	0	0.0	0	0.0	0.4
	Modified dependence with assistance in up to 50% of tasks	19	73.1	14	63.6	16	57.1	4	50.0	0	0.0	
	Modified dependence with assistance in up to 25% of tasks	4	15.2	4	18.2	5	17.9	2	25.0	1	50.0	
	Complete/modified independence	2	7.7	4	18.2	7	25.0	2	25.0	1	50.0	
Degree of facial palsy	Mild dysfunction	1	3.8	6	27.8	1	3.6	1	12.5	0	0.0	0.3
	Moderate dysfunction	5	19.2	6	27.3	8	28.6	1	12.5	1	50.0	
	Moderately severe dysfunction	5	19.2	3	13.6	7	25.0	3	37.5	1	50.0	
	Severe dysfunction	8	30.8	5	22.7	8	28.6	3	37.5	0	0.0	
	Total paralysis	7	26.9	2	9.1	4	14.3	0	0.0	0	0.0	

Legend: n = subjects; NIHSS = National Institutes of Health Stroke Scale; FIM = Functional Independence Measure.

(\*) Fisher Exact test – statistically significant when  $p < 0.05$ .



## Discussion

Changes in facial movements due to FP disfigure the face at rest, in movement, and in spontaneous expressions. However, individual personal and social factors influence how patients with FP perceive and cope with such changes<sup>9</sup>.

Speech-language-hearing assessment of facial expressions in this study identified predominantly severe FP impairment, mostly affecting the lower face. Nevertheless, most patients considered their face at rest as good, whereas only the self-perception of facial movement (forehead, eyes, and lips) was compatible with the degree classification made by the speech-language-hearing therapist – lip movement received the worst classification.

According to the literature, there is some agreement between the patients' and professionals' views of the degree of FP impairment<sup>8-9</sup>. Self-perception of the impact of FP on facial movement is compatible with the clinical assessment of the degree of FP proposed by House & Brackmann (1985)<sup>8</sup> – which was adapted in this study to classify the degree of impairment, mainly considering the lower face, as they were post-stroke patients<sup>17</sup>.

The lack of a universally accepted central FP classification system is a problem perceived by the authors of this study, reinforcing that the adaptation was necessary. Although the literature presents alternatives for PFP classification – including the assessment by Lacôte, Chevalier, et al. (1987)<sup>20</sup> and the Facial Grading Scale by Ross et al. (1996)<sup>21</sup> –, most published articles use the scale proposed by House & Brackmann (1985)<sup>18</sup>, even in post-stroke<sup>1,17,22</sup>.

As patients observe the changes in facial expressions, they realize the impact on their identity, communication, and social integration, making them aware of the impairment severity caused by FP<sup>9</sup>. On the other hand, when they only observe their faces at rest, patients may consider them good because they had not yet noticed the changes caused by asymmetry.

Lip movement is expected to be classified as worse because post-stroke FP affects mainly the lower face<sup>23</sup>. Lip mobility is given more attention as it often reveals the presence of FP when performing tasks<sup>24,25</sup>, directly influencing the patients' eating, communication (e.g., word articulation), and expressions (e.g., smiling and sadness)<sup>1,4-8,9</sup>.

Smiling is considered the most important facial expression, as it reflects positively on both the smiler and the observer<sup>26</sup>. Changes in muscle groups involved in this expression – particularly the zygomaticus major and minor, levator labii superioris, levator anguli oris, and risorius muscles – may cause people to perceive negatively an expression that the patient meant to be positive<sup>26</sup>. Paralysis in these muscle groups interferes significantly with the patients' demonstrations of their psychological condition, damaging their social relations<sup>1,4-8,9</sup>.

Women in this study classified the face at rest and lip movement worse than men, possibly because they give more importance to aesthetics, self-care, and appearance. Women are more concerned with their visual identity, as this is the established cultural pattern<sup>3</sup>, and are less inclined to accept facial changes<sup>22</sup>.

Such results were likewise found in a study<sup>2</sup> that used the FaCE scale<sup>12</sup>, in which women had a lower quality of life and higher levels of depression<sup>2</sup>. Other studies reinforce that they have greater suffering and distress than males, with importantly worsened social interaction<sup>2,3,27</sup>.

Besides being influenced by females, the classification of the face at rest varied according to NIHSS. This scale assesses neurological impairments in stroke patients regarding 11 capacities – one of which is FP<sup>7</sup>. The degree of FP impairment is not necessarily proportional to the degree identified with NIHSS<sup>22</sup>, although the variables were significantly associated in this study. This may have happened either because patients with severe neurological impairments saw their faces as worse or because they were actually further impaired. More studies are needed to support this hypothesis, associating the degree of FP impairment with NIHSS (both the total score and stratified in the 11 impaired capacities) and the patients' self-perception.

Even while in the hospital, patients classified their social activities as importantly affected and reported much dissatisfaction with their faces. These data show that they noticed the aesthetic and functional impairments and the incapacity to use facial muscles to express emotions, influencing social relations<sup>5</sup>.

Patients in this study reported feeling ashamed, inferior, and isolated when visited by family, friends, and bedside professionals while hospitalized. This corroborates the literature, reinforcing that such feelings reported by patients with FP may

lead to negative behaviors and trigger a vicious cycle, increasing social isolation and decreasing self-esteem<sup>3, 9, 11, 22</sup>. Patients with FP often see themselves as objects of undesired attention by other people<sup>3,21</sup>. A paralyzed face is significantly less attractive than a normal face and may convey distress, distrust, and lower intelligence to those who observe them<sup>27</sup>.

Hence, patients must be instructed from FP onset to perceive these difficulties, as they can get fatigued and discouraged to express themselves, causing anxiety and depression<sup>6,8,9</sup>. A study indicates an association between increased depression and lower quality of life in patients with FP, regardless of the cause of palsy<sup>28</sup>. Furthermore, the literature shows that post-stroke depression affects approximately 40% of patients with or without FP<sup>6,21</sup>, as post-stroke patients face great motor and emotional rehabilitation challenges<sup>6</sup>. A prospective randomized study<sup>21</sup> investigated depressive symptoms with Beck Depression Inventory<sup>29</sup> in patients with post-stroke FP, before and after orofacial myofunctional therapy. Patients submitted to therapy significantly improved their depressive symptoms, quality of life, facial expressions (classified with House & Brackmann [1985])<sup>8</sup>, and oral functions (including eating), after 4 weeks of intervention<sup>22</sup>.

The impact on eating was perceived in this study as well, reinforcing the effect of lip movement impairment. Nonetheless, this result must be cautiously analyzed because it may have been influenced not only by FP but also by swallowing disorders, which often occur after strokes. According to the literature, subjects with FP avoid having meals with other people because they spill food from their mouths, do not notice food on their lips, have mastication difficulties, and no longer enjoy eating<sup>3,9, 11,12</sup>. Since this study was conducted in a hospital, it was not possible to assess the influence of self-perception on biopsychosocial aspects in social contexts. However, it points to the importance of including patients' self-perception assessments in speech-language-hearing practice. Such assessments help them reflect on aspects that must be addressed in therapy and align the therapist's and patient's opinions. This instrument can be used to measure therapeutic progress, enabling a practical, objective, and low-cost observation of FP improvement.

The topic of this original research has been little studied. No papers assessing the self-percep-

tion of patients with post-stroke FP were found in the literature, and few publications addressed the assessment, treatment, and self-perception of this type of FP. Since post-stroke FP occurs frequently, there is a need for studies analyzing the patients' self-perception and the professionals' assessments to observe how the psychological condition influences their perception and adherence to post-stroke FP treatment.

## Conclusion

The results of this study led to the conclusion that the self-perception of patients with FP in the acute post-stroke phase is that FP impacts lip movement, satisfaction with the face, social activities, and eating. The self-perception of facial expressions was worse among women and patients with moderate and severe neurological impairment.

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