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Application of the psychosocial scale of facial appearance in the evaluation of peripheral facial palsy: a pilot study

Aplicação da escala psicossocial de aparência facial na avaliação da paralisia facial periférica: estudo piloto

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ABSTRACT

Purpose: To apply the Psychosocial Scale of Facial Appearance in order to verify its applicability and reproducibility in a pilot study. **Methods:** Subjects: eight adult subjects with peripheral facial palsy were selected according to established criteria. Procedures: 1. speech-language assessment of the facial function; 2. verification of the reliability of the Psychosocial Scale of Facial Appearance; 3. verification of the scale's reproducibility; 4. application of the Hospital Anxiety and Depression Scale. A descriptive analysis of the data was performed, and the paired t-Student test (between times 1 and 2) and the intraclass correlation coefficient (r_{icc}) were applied. **Results:** Assessing the applicability increased the familiarity with the data collection process and contributed to modifications in the procedures. The questionnaire proved to be reliable for all the scales analyzed: Functional, Social, and Emotional Aspects of Face, General, and Note Assigned to the Face. The intraclass correlation coefficient (r_{icc}) demonstrated the reproducibility of the instrument by showing excellent values for all thematic groups analyzed. **Conclusion:** This study provided subsides for the improvement and final elaboration of an instrument that aims to investigate the psychosocial aspects associated with peripheral facial palsy.

Keywords: Facial paralysis; Evaluation; Psychosocial impact; Questionnaires; Reproducibility of results

RESUMO

Objetivo: Aplicar a Escala Psicossocial de Aparência Facial, para verificar aplicabilidade e reprodutibilidade, por meio de estudo piloto. **Métodos:** Casuística: seleção de oito sujeitos adultos com paralisia facial periférica, a partir de critérios estabelecidos. Procedimentos: 1. avaliação fonoaudiológica da função facial; 2. verificação da fidedignidade da Escala Psicossocial de Aparência Facial; 3. verificação da reprodutibilidade da escala; 4. aplicação da Escala Hospitalar de Ansiedade e Depressão. Foi realizada análise descritiva dos dados e aplicado o teste t-Student pareado, entre os momentos 1 e 2, e o coeficiente de correlação intraclasse (r_{icc}). **Resultados:** A verificação da aplicabilidade aumentou a familiaridade com o processo de coleta de dados e auxiliou nas modificações dos procedimentos. O questionário mostrou-se fidedigno para todas as escalas analisadas: Aspectos Funcionais da Face, Aspectos Sociais, Aspectos Emocionais, Geral e Nota atribuída ao rosto. O coeficiente de correlação intraclasse (r_{icc}) demonstrou a reprodutibilidade do instrumento, tendo apresentado, neste caso, valores excelentes para todas os grupos temáticos analisados. **Conclusão:** Esta pesquisa ofereceu subsídios para o aprimoramento e elaboração final de instrumento que investiga os aspectos psicossociais associados à paralisia facial periférica.

Descritores: Paralisia facial; Avaliação; Impacto psicossocial; Questionários; Reprodutibilidade dos testes

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INTRODUCTION

Instruments for the evaluation of psychosocial impact related to peripheral facial palsy (PFP) are scarce. In a systematic review, 598 researches were found, however, only three presented assessment instruments: Facial Clinimetric Evaluation Scale (FaCE), Derriford Appearance Scale (DAS), and Facial Disability Index (FDI). Results showed that, although the development and validation processes of these instruments are evidenced, no measure meets all the guidelines to the elaboration and validation of instruments. Moreover, they are limited to the domains of self-perception of facial appearance and symptoms or satisfaction in the treatment process, which restricts its use[1].

To ensure the quality of the instrument it is essential to search the literature on the theme, for appropriation of the theoretical basis, to elaborate questions that are faithful to the objective proposed, for assessment of the instrument by selected specialists, and for later review[2,3,4]. These steps were previously followed to elaborate the instrument in this research, named Psychosocial Scale of Facial Appearance (PSFA)[5]. The investigation of applicability and reproducibility are steps to be reached in the present study and the analysis of the obtained results might improve the instrument for future adjustments and applications.

Specifically in cases of PFP, it has been observed impairments in facial expression and mimicry, speech, chewing, swallowing, and eyelid closure[6,7], in addition to alterations in taste, salivation, lacrimation, hyperacusis and external auditory canal hypoesthesia[8,9].

The psychological and social impact of PFP may include difficulties in verbal and non-verbal communication, and social relationships[10,11], besides emotional stress, anxiety and depression. The fact that the individual is or feels rejected by others may lead him to avoid public places[12,13,14,15,16].

Therefore, the aspects involved in the illness process of the subject with PFP, such as the feelings facing the symptoms and his own way of dealing with the situation, must be investigated.

In order to analyze differences in the psychological condition of people with PFP, a case-control study was conducted, comparing them with healthy individuals. The House-Brackmann Scale was used to assess facial function and the Facial Disability Index to assess subjects' self-perception. The Kessler Psychological Distress Scale (K10) was used for psychological suffering and, finally, The Sixteen Personality Factor Questionnaire (16PF) was used for personality profiles. The study showed that the psychological condition of patients with PFP is different from healthy people, and psychological suffering and personality factors are closely related to the severity of PFP and to female patients[17].

After these considerations, it is possible to highlight the importance to investigate, in this study, the psychological and social aspects involved in the treatment of subjects with PFP by health professionals in general and the speech-language pathologist, by proposing interventions that integrate both aspects to myofunctional and communication (verbal and non-verbal) rehabilitation for the facial alterations[10,11].

Therefore, the aim of this study was to apply the Psychosocial Scale of Facial Appearance (PSFA) in order to verify the applicability and reproducibility of the instrument in a pilot study.

METHODS

Ethical considerations

This study met the ethical criteria established by the Resolution 196/96 of the National Health Council regarding research with human beings, and was approved by the Research Ethics Committee of the *Pontifícia Universidade Católica de São Paulo* (PUC), under protocol number 196.977.

According to the ethical precepts of research with human beings, a Free and Consent Inform was elaborated for subjects' to sign, agreeing to participate in the study. The document included: objective and procedures of the study, guaranteed confidentiality of the participants' identity, and assurance of the possibility of quitting the study at any time.

This study emerged from a previous research, in which the Psychosocial Scale of Facial Appearance (PSFA) (Appendix 1) questionnaire was elaborated and went through careful assessment from judges with large experience in the care of patients with PFP[5]. Moreover, clinical observations from the researcher were also considered for the identification of factors that could contribute to the process of validation of the instrument. The validation procedures have the purpose to verify if the PSFA is capable of measuring the level of representation of the object it aims to assess.

The study was carried out in an outpatient service from the State of São Paulo, Brazil, where the cases of recovering and rehabilitation of PFP are recurrent. The data collection occurred in the period from July to August 2013.

Sample selection criteria

- Adult subjects from both genders, older than 18 years of age;
- Subjects with unilateral PFP from different etiologies, in acute and sequelae stages and with definition of severity according to the House-Brackmann Scale;
- No other facial alterations other than those caused by PFP.

Invitation for subjects' participation and data collection

Before applying the PSFA, the researcher performed a simplified oral presentation on the subject to the individuals

invited to participate. They were also informed about the relevance of the research and the benefits that the results might bring to people with PFP, as well as to professionals' reflections regarding the speech-language clinical care.

The outpatients had had no previous contact with the researcher and the procedure was new in the hospital routine, so, before applying the questionnaire, the researcher asked questions such as: "is everything alright?", "what time did you get here?", "where do you live?", "did you bring anyone with you?" as a sensitization strategy for the subjects to feel more comfortable with the new situation. This part of the procedure took about 15 minutes.

The invitation to participate in the study had the aim to bring the selected subjects closer to the researcher. The sensitization worked as an effective strategy for adhesion. During the application of the pilot study, subjects were solicit, and 20 from the 22 invited agreed to participate in the research.

Personal identification and information regarding the PFP were collected from the record files of the patients, and when that was not possible, the questions were asked directly to the subjects. Data was collected and stored in database for later analysis and comparison with the elements obtained in the PSFA.

The following procedures were performed:

1. Speech-language assessment of facial function

The researcher explained to the subjects about the assessment of facial function and what would be the procedures adopted, and also asked permission and cooperation to perform the facial movements, when necessary.

The House-Brackmann Scale (1985) was applied to assess the severity of PFP, considering the following parameters: facial symmetry at rest, movement degree of the facial muscles, and synkineses due to specific voluntary movements.

The speech-language assessment of the facial functional condition was performed in order to classify the stage of PFP, according to the Facial Grading System[18].

In the acute and sequelae phase, the face was assessed at rest, observing signs that indicated PFP, compared to the normal side. Eyes, cheeks and mouth were analyzed, and alterations were classified as partial or total[18].

In the assessment of voluntary facial movement, subjects were asked to perform each movement three times, for the accuracy of quotation in one of the five degrees of the scale (A – unable to start the movement to E – complete movement). The following movements were analyzed: furrowed brow lift, eyelid closure, smile, nose lift, and kiss[18].

In the sequelae stage, the presence of contractures and/or synkineses were characterized in the same movements mentioned above, aiming the scale quotation (F – None: without synkinesis or mass movement to I – Severe: disfiguring synkinesis/gross mass movement of several muscles)[18].

The degree of PFP was quantified at rest (0-20) and in movement (20-100), and the degree of synkineses were also quantified (0-15). A total assessment score was assigned, corresponding to the score at movement minus the score at rest and the synkineses score[18].

2. PSFA reliability: pilot stage

In the first stage of the pilot study, the PSFA was presented and applied so the subjects themselves answered the questions and selected the answers that most suited their opinion. The researcher interfered only in cases of doubts or if the subject would return the questionnaire missing an answer. Five subjects participated in this stage.

Many subjects presented difficulties in answering the questions by themselves due to restrict conditions of reading practice. They frequently missed an answer, which was provided after the researcher's alert. Subjects took 10 to 15 minutes to answer the questionnaire, and many of them left the impression that they wanted to finish the task as soon as possible. This was, sometimes, verbally expressed to the researcher, and could possibly impair the interpretation of some questions and the reliability of the instrument.

Therefore, two possibilities were considered: 1) to handle the questionnaire for the subject to answer and return it the following week; 2) to apply the questionnaire as a closed interview. The second possibility was chosen, considering the risk of the subjects forgetting or not showing up in the following week for outpatient care.

The closed interview format was tested and defined as the procedure to be used in this study and, hence, the pilot study was restarted with new participants. Fifteen subjects participated in the reliability application stage.

Therefore, the questions were asked neutrally. In case the subjects demonstrated doubts, the researcher would explain in a simplified way, or by presenting examples.

As respostas esperadas também foram lidas pela pesquisadora, de forma neutra e sempre com uma frase introdutória: "Você acha que isso ocorre sempre, as vezes, raramente ou nunca?", ou "Para esta questão você concorda totalmente, concorda em partes, não lembra ou discorda totalmente?".

The expected answers were also read by the researcher in a neutral and simple way, always using an introductory sentence: "Do you think this occurs always, sometimes, rarely or never?", or "Do you agree with this question totally, partially, do not remember or totally disagree?".

3. PSFA reliability: pilot study

After 15 days, the PSFA was applied to the same subjects in order to verify the reproducibility of the instrument, with the aim to investigate the consistency of the answers. However, only eight participants completed this stage. The lower number of subjects in this stage was due to absence in the appointment (two), appointments in other departments (two) or in

the speech-language service (one), which hindered the time to participate in the research or, still, the subject did not have any appointments scheduled in the 15 days interval for the PSFA reproducibility (two).

Data obtained in the processes of applicability and reproducibility of the instrument were analyzed and considered for the continuation of the study, to understand the doubts of the subjects and determine some incongruity in the PSFA.

4. Application of the Hospital Anxiety and Depression Scale (HADS)

In order to obtain comparative data regarding the psychological aspects, the Hospital Anxiety and Depression Scale (HADS) was applied at the end of the closed interview stage, using the same procedure as the PSFA, that is, the closed interview format[19].

The HADS comprises 14 items, from which 7 are regarding the assessment of anxiety (HADS-A) and 7 regarding depression (HADS-D). Each of these items may be scored from 0 to 3, making a maximum score of 21. To assess the frequency of anxiety and depression, the answers to the items of the HADS were scored. The cut-off scores are indicated below and recommended for both sub-scales[19]:

- HADS-A: normal from 0 to 8; anxiety ≥9.
- HADS-D: normal from 0 to 8; depression ≥9.

Statistical analysis

After data collection, the descriptive analysis was performed using absolute and relative frequencies, central tendency (mean and median) and dispersion (standard deviation, minimum and maximum) measures.

Quantitative variables were analyzed by the Komolgorov-Smirnov test for normality verification and, when a normal distribution was not found, non-parametric tests were applied. For reproducibility analysis, it was applied the paired t-Student test between moments 1 and 2 of the questionnaire application, and the intraclass correlation coefficient (r_{icc}).

For statistical significance, a descriptive level of 5% ($p<0.05$) was adopted. Data were entered in Excel and analyzed using the programs SPSS version 17.0 for Windows and AMOS, version 22.0 for Windows.

RESULTS

The final study had 8 subjects - 5 women and 3 men. The mean age was 35.9 years (SD=11.3), with median of 34.7 years, varying between 18.3 and 49.9 years (Table 1).

Among the participants, 3 were unemployed (37.5%) and the others worked in medium level jobs.

Regarding the family history of PFP, only 1 subject (12.5%) presented it.

Retro-auricular pain was referred by 62.5% of the subjects as one of the signs previous to PFP. Regarding the onset of the PFP, it happened suddenly in 100% of cases.

Table 1. Distribution of frequencies and percentages of the characteristics of age, gender, etiology, stage, and House-Brackmann Scale of PFP

Variable	Category	n	%
Age	18 – 30	3	37.5
	31 – 45	3	37.5
	46 – 50	2	25
Gender	Male	3	37.5
	Female	5	62.5
Etiology	Idiopathic	4	50
	Herpes simplex type I	2	25
	Parotid tumor	1	12.5
	Post-trauma	1	12.5
PFP Stage	Acute	3	37.5
	Recovering	3	37.5
	Sequelae	2	25
HBS	III	4	50
	IV	2	25
	V	2	25
Total		8	100

Subtitle: PFP = peripheral facial palsy; HBS = House-Brackmann Scale

From the subjects studied, 62.5% had the right hemiface affected. Regarding the etiology, 50% of the subjects had idiopathic etiology, 25%, herpes simplex type I and 12.5%, parotid tumor and post-trauma.

As for exams and treatments, 100% of the subjects were submitted to the audiometry test, and the drug treatment adopted, in all cases (100%), was with anti-inflammatory drugs.

In this sample, all subjects were being followed up by the otorhynolaryngologist and were under myofunctional rehabilitation with the speech-language pathologist. Only 1 had had acupuncture and that was the subject who had had PFP for the longest period (23 months).

The mean time of PFP was 7.1 months (SD=7.7), median of 4.9, varying from less than 1 month to 23 months. Regarding the composed score of the facial function assessment, the mean score was 39.4 (SD=22.3), median of 43.5 points, with minimum of 5 and maximum of 63 points (Table 2).

Assessment of the questionnaire's reproducibility

The reproducibility of the questionnaire was assessed after 15 days from the date of the first application.

The analysis of reproducibility between the first and the second moment of the pilot study showed that the questionnaire was reliable for all the analyzed scales: Functional (p=0.528), Social (p=1.000), and Emotional Aspects of the Face (p=0.351), General (p=0.487) and Note Assigned to the Face (p=0.285) (Table 3).

Table 2. Descriptive statistics for the time of peripheral facial palsy and Assessment of Facial Function

Variable	n	$\bar{x}$	SD	Median	Minimum - Maximum
Time (in months) of PFP	8	7.1	7.7	4.9	0.3 – 23
Symmetric score at rest	8	11.3	4.4	12.5	5 – 15
Symmetric score at voluntary movement	8	51.5	19.4	56	20 – 68
Synkinesis score	8	0.9	1.8	0	0 – 5
Composed score	8	39.4	22.3	43.5	5 – 63

Subtitle: PFP = peripheral facial palsy; SD = standard deviation

Table 3. Comparative data between moments 1 and 2 of the application of Psychosocial Scale of Facial Appearance

Variável	Reproducibility								p-value
	Moment 1				Moment 2				
	n	$\bar{x}$ (SD)	Median	Min – max	n	$\bar{x}$ (SD)	Median	Min – max	
Functional aspects of face	8	11.6 (7.5)	15.5	0 – 20	8	11.3 (7.7)	13.5	0 – 21	0.528
Social aspects – performance in tasks**	8	5.9 (3.7)	6	1 – 10	8	5.9 (3.7)	6	1 – 10	--
Social aspects – social interactions	8	6.4 (4.0)	8	1 – 11	8	6.4 (4.3)	8.5	0 – 11	100
Social aspects – general	8	12.3 (7.1)	14	1 – 20	8	12.3 (7.3)	14.5	1 – 20	100
Emotional aspects	8	13.5 (6.5)	15	4 – 20	8	13.4 (6.5)	15	4 – 20	0.351
General scale	8	37.4 (20.7)	45	6 – 57	8	36.9 (20.7)	44.5	5 – 56	0.487
Note assigned to the face	8	6.3 (2.7)	5.5	3 – 10	8	6.6 (2.5)	6	3 – 10	0.285

Paired t-student test (p>0.05)
**Identical values
Subtitle: SD = standard deviation

The intraclass correlation coefficient (r_{icc}) showed the reproducibility of the instrument, presenting, in this case, excellent values ($r_{icc} \geq 0{,}75$) for all the thematic groups analyzed, varying from r_{icc}=0.94 to r_{icc}=0.99[20] (Table 4).

Table 4. Intraclass correlation coefficient (r_{icc}), according to the theme groups of Psychosocial Scale of Facial Appearance

Score	r_{icc}	p-value
Functional aspects of face	0.98	<0.001*
Social aspects – performance in tasks**	1.000	--
Social aspects – social interactions	0.98	<0.001*
Social aspects – general	0.99	<0.001*
Emotional aspects	0.99	<0.001*
General scale	0.99	<0.001*
Note assigned to the face	0.94	<0.001*

*Significant values (p<0.05) – Intraclass correlation coefficient
**Identical values

DISCUSSION

Studies with the purpose of investigating the aspects of self-perception, psychosocial or quality of life in PFP, either as the main objective or as part of the research process, have showed little comparative data with the severity degree of facial function or with the onset time of PFP[1].

Instruments used to evaluate the effects of interventions and subjective contents to PFP are scarce[1] and present limitations for the purpose of this research. Therefore, it was developed an instrument to measure the psychosocial implications involved in PFP cases, which reached the necessary scientific rigor to compose the Psychosocial Scale of Facial Appearance (PSFA)[5].

The first stage of the pilot study increased familiarity with the process of data collection and contributed to changes in the procedures. The change in the application of the instrument – from a questionnaire to be answered by the subject to closed interview – was proven necessary as it allowed the subjects to have a better comprehension of the questions and reflect about the theme.

The change in technique was also justified by the assumptions of functional health literacy, which found low ability of the subjects to read, process and understand basic health-related information, and by the need for health professionals to find manners to facilitate the mediation of instructions or, in this case, of the application of questionnaires[21,22].

It has also been evidenced that a more previous time for the presentation of the study to the subjects increased the acceptance and participation and contributed to the later discussion of contents not usually explored by the patients, in the theme groups related to social and emotional aspects.

It is important to emphasize that clinicians do not need to have experience to perform a key role in the detection and

assessment of symptoms that may change the psychological and/or social functioning. Thus, ignoring these symptoms or not listening to them might have important repercussions on a subject's life[5,10,11].

The results of this study were found reliable and consistent in all the scales assessed, which proves that the process of development was effective. The importance of validation processes of an instrument such as the PSFA was found relevant, since there are few instruments for this purpose. The process of elaboration and assessment of judges reaffirmed the rigor of the instrument and the statistical data presented in this pilot study, specifically the intraclass correlation (r_{icc}), which presented excellent values ($r_{icc} \geq 0.75$) for all the theme groups analyzed. These data assure the conduction of future studies with larger number of subjects[5,10,11,17,20].

However, as reported in the results, the number of subjects in the pilot study was small (eight subjects), making it necessary to develop a more consistent study to evaluate the sensitivity of the PSFA. Nevertheless, preliminarily, the questionnaire successfully reached the psychosocial aspects of the studied population and raised contents still little explored by these subjects.

The questionnaire was appropriate and relevant to answer the question of the research to which it was developed. Thus, considering data obtained in the pilot study, the procedures of further studies may be delimited.

CONCLUSION

The pilot study regarding the application of the PSFA evidenced its value by identifying and relating functional and psychosocial aspects of PFP, from the subjects' point of view. Its application was easy and low-cost, which is ideal for the use in epidemiological studies.

Therefore, further studies with the PSFA are necessary for its validation, so the instrument can be effectively used for the investigation of psychosocial aspects in PFP.

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Appendix 1. Psychosocial Scale of Facial Appearance

Name: _____ **Date:** ____/_____/_____

This questionnaire will help us to understand the impact of the facial physical change in your emotional and social life. Please, answer all the correspondent questions and ask in case you have any doubts. If you want to add complementary information, use the final space for notes.

	Mark ONLY ONE NUMBER thinking of the LAST WEEK and your FACE	Always	Sometimes	Rarely	Never
FAF	1) I have difficulty moving my face.	3	2	1	0
FAF	2) I have difficulty blinking or closing my eyes.	3	2	1	0
FAF	3) I have difficulty keeping fluids or food in my mouth.	3	2	1	0
FAF	4) I have difficulty speaking some words with the sounds: 'p', 'b', 'm', 'f', 'v', 'ch' and 'g'.	3	2	1	0
FAF	5) I cannot control the movements in my face when I speak, smile, chew and/or close my eyes.	3	2	1	0
FAF	6) I feel pain in my face.	3	2	1	0
FAF	7) I cannot express my emotions with my face .	3	2	1	0
FAF	8) I have difficulties kissing .	3	2	1	0
SA – PT	9) I have difficulties leaving the house, visiting family and/or friends.	3	2	1	0
SA – PT	10) It bothers me to be in a picture.	3	2	1	0
SA – PT	11) It bothers me to eat in front of people.	3	2	1	0
SA – PT	12) It bothers me to go to work and/or attend to classes.	3	2	1	0
SA – SI	13) It bothers me to talk face to face with people.	3	2	1	0
SA – SI	14) I am more comfortable around close people from my social circle.	3	2	1	0
EA	15) The difficulty to smile bothers me.	3	2	1	0
EA	16) I lost the will to eat.	3	2	1	0
SA – SI	17) I have difficulty relating to my partner or, if I do not have a partner, starting a relationship with someone.	3	2	1	0
SA – SI	18) I realize my family and friends treat me differently now.	3	2	1	0
EA	19) I suspect my face will not get better.	3	2	1	0
EA	20) It bothers me to notice that people who don't know me look at me in a different way.	3	2	1	0
EA	21) I feel sad or distressed when I am not able to show my emotions through facial expressions.	3	2	1	0
EA	22) I do not feel like taking care of my appearance.	3	2	1	0

	Mark ONLY ONE NUMBER	Agree	Partially agree	Don't remember	Disagree
EA	23) I suspect the change in my face is related to a previous events of sadness, distress, stress and/or anxiety.	3	2	1	0
EA	24) I remember when I saw the change in my face I felt scared, desperate and/or distressed.	3	2	1	0

*** From 0 to 10, what note would you assign to your face? (0 being very bad and 10 very good)**

*** Beside these questions, would you like to add any other information?**

Subtitle: FAF = Functional aspects of face; SA – PT = Social aspects – Performance in tasks; SA – SI = Social aspects – Social interactions; EA = Emotional aspects