

Teleconsultation in cosmetic clinical studies

An alternative and complement to face-to-face studies

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Introduction:

Background

The COVID-19 pandemic and the forced closure of clinical study centres led the Eurofins Evic study centre to experiment with the feasibility of conducting remote virtual clinical studies under dermatological control. Two studies were carried out by teleconsultation (in association with L'Oréal) at the subjects' homes, using different tools. The objective was to improve the quality of the images obtained in order to facilitate remote scoring by the evaluators.

Following the feedback gathered from these two studies, it became apparent that the evaluators had real difficulties in assessing some skin parameters on the face via teleconsultation, due to the poor image quality. The subjects also experienced real difficulties at home (in terms of logistics, materials, and connection). Without the proper tools, can tele-evaluation be used to effectively evaluate skin parameters?

Objective

A new study was conducted to identify and quantify the differences between face-to-face and remote assessments, in order to address the following questions:
 1. Is there a difference in scoring between face-to-face and teleconsultation?
 2. Can all skin parameters be scored with teleconsultation?
 3. Are there tools that can be used in order to improve scoring in teleconsultation and to better approximate real face-to-face evaluation?

Materials & Methods:

Methodology

Two clinical experts participated in this study: Evaluator 1, who had never scored by teleconsultation, and Evaluator 2, who had participated in two previous studies.

The study took place at the Investigational Centre in two dedicated rooms: one room for the subject and the face-to-face assessment, and one room for the assessor and teleconsultation scoring.

Following a pre-study on five subjects, the first round of feedback revealed the need to adapt the evaluation methodology for some parameters in order to better approximate face-to-face evaluation (parameterisation of the tools or the intervention of the subject).

Following these adjustments, 15 items were defined and scored with the usual validated 10-point scales, from 0 to 9 for each item, on 23 subjects.

In addition to the scoring, a questionnaire was submitted to the volunteers to collect their opinion on the experience.

Subjects

The study had a group of 23 subjects – 2 men and 21 women – aged 30 to 68 years, with a Fitzpatrick phototype between II and IV, and with all face skin types represented. The subjects were previously acclimatised under a controlled temperature and hygrometry conditions.

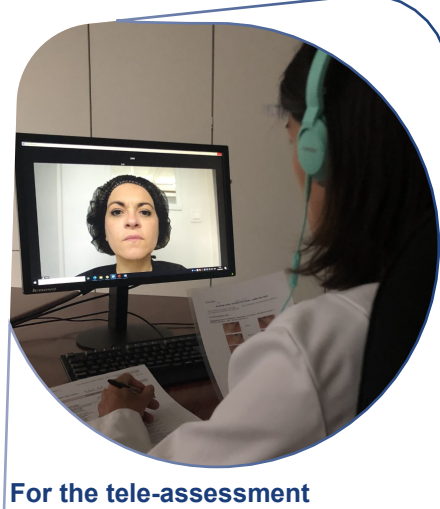
Materials



For the Face-to-Face assessment Subjects & Evaluators:
 An assessment table with standardized lighting using 3 neon lights (sides + top) is used. The volunteer is positioned with his or her abdomen pressed against the assessment table, arms laying on the table.



For the tele-assessment Subjects Room
 An assessment table with standardized lighting using only the upper neon light. The volunteer is positioned leaning against the back of the chair, with his arms laying on the table.



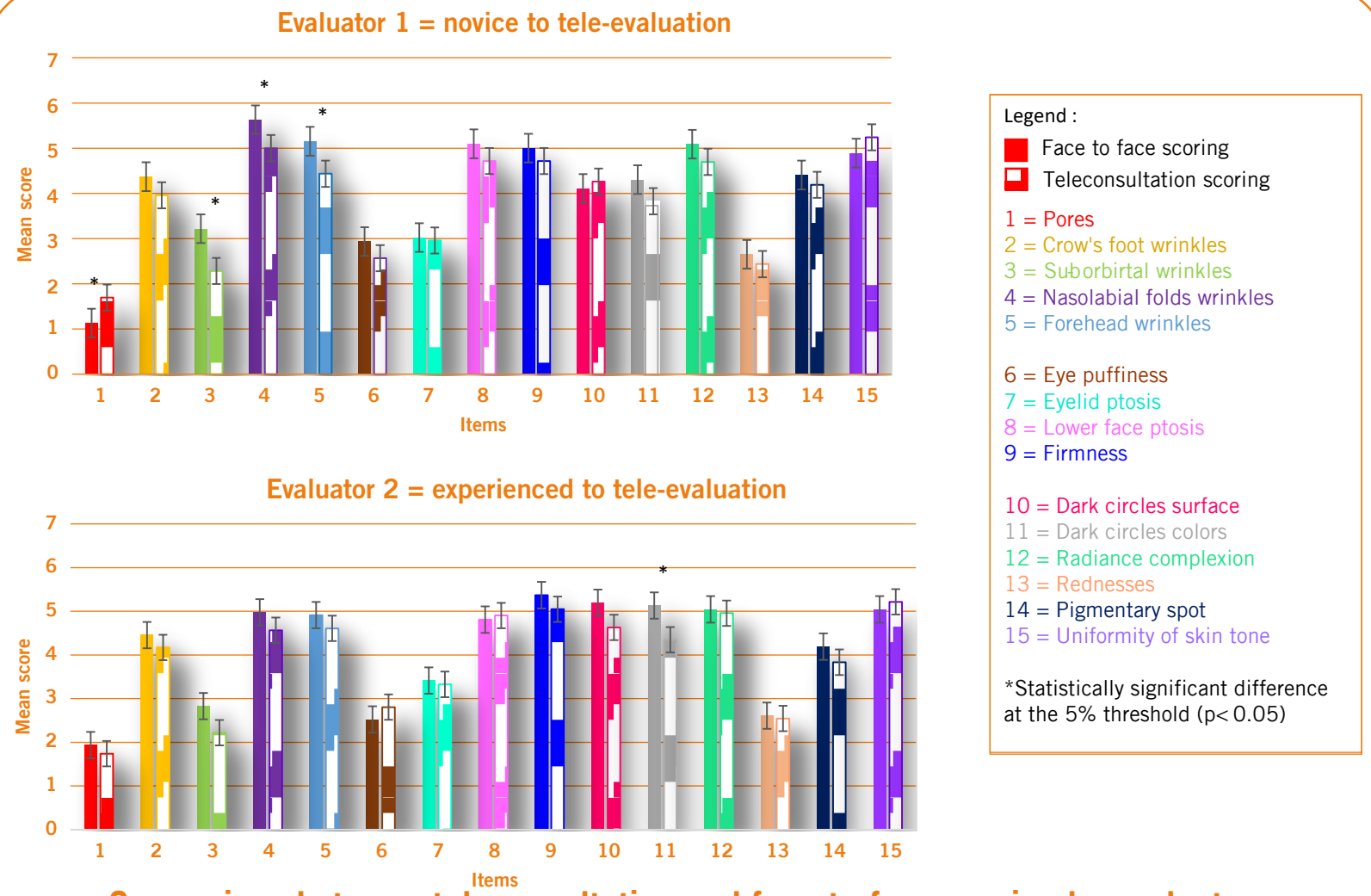
For the tele-assessment Evaluators Room
 A computer with calibrated Full HD 24-inch screen 1920 x 1080 on the evaluator side. Remote conferencing service of the market. Headphones and microphones.

- Camera Nikon D5200
- Full HD with 18-55mm lens
- Automatic mode
- 24mm or 55mm (pores evaluation) lens
- Adjustable tripod according to the size of the subjects
- Key HDMI 4K
- Loudspeakers and microphone

Statistical analysis (made with IBM SPSS version 28.0)

The data from each subject was collected and sorted for each item according to the four conditions (face-to-face – Evaluator 1 / Tele-evaluation – Evaluator 1 / face-to-face – Evaluator 2 / Tele-evaluation – Evaluator 2). A two-factor ANOVA (Analysis Of Variance) was performed. A Pearson correlation was also calculated between the average scores of the two evaluators for each item.

Results & Discussion:



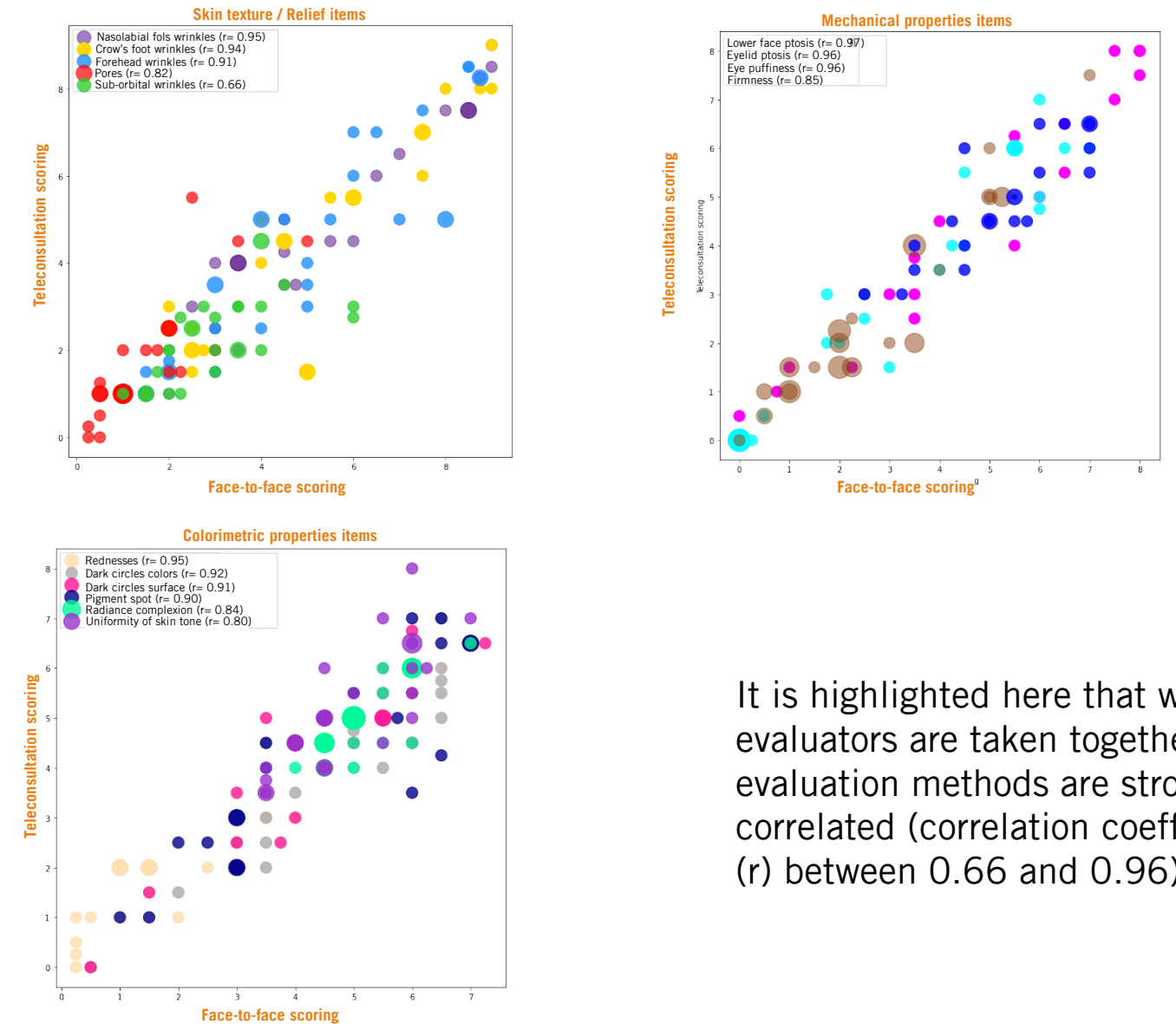
Comparison between teleconsultation and face-to-face scoring by evaluator:

For Evaluator 1, who was new to tele-evaluation, significant differences between the teleconsultation and face-to-face assessment were found for four items related to skin texture or relief (pores and wrinkles).

For Evaluator 2, who was experienced in tele-evaluation, significant differences between the teleconsultation and face-to-face assessment were found for only one item, related to skin colour (dark circles colour).

These results highlight the fact that, overall, the scoring carried out by teleconsultation and face-to-face are fairly comparable, but that the training of the evaluator in these conditions is fundamental for the practice of teleconsultation scoring.

Global correlation between teleconsultation and face-to-face scoring: Average scores of face-to-face evaluations in respect to tele-evaluation

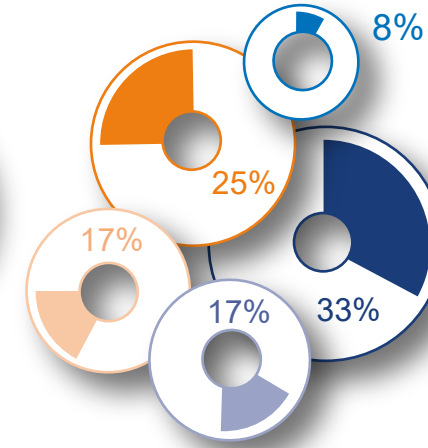


It is highlighted here that when all evaluators are taken together, the evaluation methods are strongly correlated (correlation coefficient (r) between 0.66 and 0.96).

Subjects' satisfaction with the teleconsultation experience during this study



Subjects' opinions on their on-site teleconsultation experience:



For the subjects, on-site teleconsultation would avoid the potential difficulties of home teleconsultation

Regarding their experience during the study, the subjects showed a very high satisfaction rate (86%), specifically regarding their feeling of wellbeing and understanding of the study process. However, subjects claimed that on-site teleconsultation would be easier due to the presence of a supervisor.

Conclusions:

From a material point of view, the light reflection parameter still needs to be improved in order to increase the correlation coefficient on the texture and relief parameters. Tests will be carried out with a polarising filter on the camera lens. This study shows that it is possible to carry out qualitative clinical studies at a distance, but that the quality of the evaluations depends on the training of the evaluators in teleconsultation evaluation and on the implementation of specific tools. In the same way as for the face-to-face scoring, a tele-evaluation training process will be set up for the evaluators.

These results allow us to consider carrying out multi-centre studies with the same trained evaluators or with multiple assessors as soon as the centres are equipped with the adapted material (easy to set up) in order to be able to offer studies with subjects from different regions and countries. The second advantage is being able to work with experts outside the centre and benefit from experts with specialties not present in our study centres.

The limitations of this type of study lie in the possible assessment area. It is well suited for facial evaluation but seems more difficult to use in studies for the evaluation of products for the body.

These results also allow us to consider the fourth phase of the prospective study, which is the qualitative home consultation and the development of mobile tools to control the subject's positioning, lighting and web connection.

Keywords: Teleconsultation; Clinical test; Cosmetics
Conflict of interest: NONE