

Original Article

Author:

Doris Hexsel¹
 Magda Blessmann Weber²
 Maria Laura Taborda¹
 Taciana Dal'Forno³
 Débora Zechmeister-Prado⁴

¹ Dermatologist Physician – Porto Alegre (RS), Brazil

² Associate Professor of Dermatology, Medical Clinic Department, Universidade Federal de Ciências da Saúde de Porto Alegre (UFCSA) – Porto Alegre

³ Cosmetic Dermatology Preceptor, Dermatology Department, Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS) – Porto Alegre

⁴ Pharmacist – Porto Alegre

Correspondence:

Doris Hexsel
 Dr. Timoteo, 782 – Moinhos do Vento
 90570 040 - Porto Alegre – RS, Brazil
 Tel.: (55 51) 3264 1234 / 3026 2633
 E-mail: doris@hexsel.com.br

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A quality of life measurement for patients with cellulite

Celluqol® - instrumento de avaliação de qualidade de vida em pacientes com celulite

ABSTRACT

Introduction: After puberty, most women develop some amount of cellulite. With the increasing number of dermatological consultations about treating cellulite, a broader understanding of the characteristics, wishes and expectations of these patients regarding their quality of life has become necessary.

Objective: To develop and validate an instrument to evaluate the quality of life of patients with cellulite.

Methods: The study consisted of two stages: in the first, instruments for assessing patients' quality of life were developed and validated; in the second, two questionnaires were administered to 100 females with cellulite, aged 18 to 45.

Results: The reliability of the results was assessed using factorial analysis and Cronbach's alpha test. With the use of exploratory factorial analysis, it was possible to test (1) the hypothesis that all questions in the shortened questionnaire measured a single factor (cellulite) and (2) the hypothesis that each block of questions in the full version of the questionnaire measured a single domain or factor among the parameters being assessed (dressing style, physical activity, partner, feelings and change in daily habits).

Conclusion: The validation analysis showed that both questionnaires effectively measure cellulite patients' quality of life.

Keywords: quality of life; questionnaires; cellulitis.

RESUMO

Introdução: Após a puberdade, a maioria das mulheres desenvolve algum grau de celulite. O aumento do número de consultas dermatológicas relacionadas ao tratamento da celulite demandou compreensão mais ampla de características, desejos e expectativas desses pacientes com relação à qualidade de vida.

Objetivo: Elaborar e validar instrumento de avaliação da qualidade de vida para pacientes com celulite.

Métodos: O estudo teve duas etapas: a elaboração e a validação dos instrumentos de avaliação da qualidade de vida. Na segunda etapa, dois questionários foram elaborados e aplicados a 100 voluntárias com idade entre 18 e 45 anos, que apresentavam celulite.

Resultados: A confiabilidade dos resultados foi verificada por meio de análise fatorial e Teste α de Cronbach para avaliação estatística. Uma análise fatorial exploratória possibilitou testar a hipótese de que todas as questões do questionário resumido mediam um único domínio ou fator (no caso, celulite) e a hipótese de que cada bloco de questões do questionário completo media um único domínio ou fator entre os parâmetros avaliados (modo de vestir, lazer, atividade física, parceiro, sentimentos e mudança de hábitos cotidianos).

Conclusões: A análise de validação mostrou que ambos os questionários podem ser usados, com grau similar de eficácia.

Palavras-chave: qualidade de vida; questionários; celulite.

INTRODUCTION

The World Health Organization supports an inclusive view of health, according to which the state of being healthy does not refer merely to a lack of a disorder or illness, but also an individual's ability to lead a productive and pleasant life.¹ Although important, evaluating quality of life is neither an easy nor a simple task. As a result, several measurements that apply to several disorders or groups of patients have been developed and validated.^{2,3}

Dermatology and other medical specialties – such as plastic surgery – involve caring for patients with aesthetic complaints. However, there is comparatively little discussion in the literature of quality of life in this area.

Cellulite is a condition that occurs mostly in women, affecting especially the thighs and buttocks, and constitutes an extremely frequent complaint. The term, which originated in the French medical literature more than 150 years ago, is globally known and used to characterize alterations on the skin's surface that resemble the appearance of an orange peel, cottage cheese or a quilt. Synonyms include: edematous adiposity and gynoid lipodystrophy.

Although its prevalence has not been established, most women develop some degree of cellulite following puberty. It is prevalent in women of all races, but is more common in Caucasians.⁴ There are three hypotheses that try to explain cellulite's physiology: inflammatory factors and vascular or conjunctive tissue's septae alterations;⁴ there is also a relevant hormonal component, since it affects almost all women and is rare in men. The first classification of cellulite was described by Nurnberger and Muller in 1978 and was based on the lesions' clinical aspect.⁵ A new classification developed by Dal'Forno and Hexsel – the Cellulite Severity Scale – adds further clinical parameters,, evaluating cellulite qualitatively and quantitatively.⁶

There is an increasing search for a perfect physical appearance, and a lack of clinical studies in this field.

In Brazil, the rates of plastic surgeries and cosmetic consultations are among the highest in the world. Understanding the reasons that lead patients to undergo such a great number of procedures – including surgeries – to improve their physical appearance could lead to a decrease in the current number of unnecessary procedures.^{7,8} The accelerated growth of dermatologic consultations about aesthetic complaints suggests there is a need for a more inclusive understanding of the characteristics, desires and expectations of patients that seek cosmetic procedures.

Noting the lack of a method to evaluate the quality of life in patients with cellulite, the authors were motivated to develop such an instrument to make it possible to verify, both quantitatively and qualitatively, the reasons why aesthetic imperfections are considered an inconvenience that disturb and interfere with people's daily life, apparently more intensively today than in previous times.

OBJECTIVE

This study is aimed at the elaboration and validation of an instrument for evaluating of the quality of life of patients with cellulite.

METHODS

A transversal study was developed to analyze female patients aged 18 or older who sought treatment for cellulite at the research unit of the Centro Brasileiro de Estudos em Dermatologia – Brazilian Center of Studies in Dermatology (CBED in Porto Alegre, RS, Brazil. Patients with a history of psychiatric disorders or decompensated systemic disorders such as systemic arterial hypertension and diabetes mellitus, were excluded.

The study was conducted according to Good Clinical Practices and the Declaration of Helsinki. The research study was approved by the ethics committee of the Universidade Federal de Ciências da Saúde de Porto Alegre (UFCSPA) and was assigned the number 281/06.

The study comprised two stages, each of which had two phases: the preparation and validation of a Portuguese-language assessment tool and the evaluation of patients' quality of life.

Stage I: Preparation of the quality of life evaluation tool

Based on information contained in the CBED's research unit database, patients who had already sought care relating to cellulite were identified and invited to participate in the study as a convenience sample. The sample used in that stage of the study was based on convenience, having been considered ideal when there was enough coincidence of answers, without the presence of new significant complaints. The patients were evaluated in light of the inclusion and exclusion criteria before the interview. Those who were eligible for participation were instructed about the objectives of the analysis and offered a Term of Free and Informed Consent to be signed in case of agreement. The patients took part in the study by answering a single open-ended question about which aspects of their lives are impaired by their cellulite: "We are trying to find out how much cellulite affects the patients' life. We would be grateful to have your help, though you are not obliged to do so. Please describe below how cellulite affects your life. You can take into consideration any aspect of your professional and social life, personal relationships, leisure activities, or any other situation. Although it would be important to know your age, you don't need to disclose it."

In the second phase of Stage I, patients' answers were qualitatively assessed and a database with the main complaints, grouped in wider domains, was created as described below:

Manner of dressing: choices of colors and fabrics, choice of tighter cuts and use of very short clothes.

Leisure: participation in group activities that involve exposing the body to a large number of people (beach, swimming pool) or a more restricted number of people (massage).

Physical activities: participation in sports activities that require exposing the body (swimming, water aerobics).

Table 1: Celluqol (full version)

How having cellulite makes you feel about:	Not bothered at all	Not bothered most of the time	Indifferent	Bothered most of the time	Bothered all the time
MANNER OF DRESSING					
1. choice of clothes' colors	1	2	3	4	5
2. choice of clothes' fabric	1	2	3	4	5
3. choice of tight cuts	1	2	3	4	5
4. wearing of very short clothes	1	2	3	4	5
LEISURE					
5. participation in activities that involve exposing the body to a large number of people (beach, swimming pool)	1	2	3	4	5
6. participation in group activities that require exposing the body to a restricted number of people (massage)	1	2	3	4	5
PHYSICAL ACTIVITIES					
7. HAVING CELLULITE	1	2	3	4	5
8. participation in sports activities that involve exposing the body (swimming, water aerobics)	1	2	3	4	5
PARTNER					
9. exposing the body to a partner	1	2	3	4	5
10. fear of losing partner	1	2	3	4	5
11. sexual life	1	2	3	4	5
12. the fact that a partner notices the cellulite	1	2	3	4	5
FEELINGS					
13. embarrassment	1	2	3	4	5
14. difficulties and doubts about the result of treatments, disbelief	1	2	3	4	5
15. guilt	1	2	3	4	5
16. frustration	1	2	3	4	5
17. discouragement	1	2	3	4	5
18. self-esteem	1	2	3	4	5
19. rebelliousness	1	2	3	4	5
CHANGES IN DAILY HABITS					
20. changes in eating habits	1	2	3	4	5
21. spending more than able to afford on treatments	1	2	3	4	5
22. restricting other expenses to treat cellulite	1	2	3	4	5

Partner: exposing the body to a partner, fear of losing the partner, restrictions in sexual life, bothered by the fact that a partner notices the cellulite.

Feelings: embarrassment, difficulties and doubts about the result of treatments, disbelief, guilt, frustration, discouragement, decrease in self-esteem, rebelliousness.

Changes in daily habits: changes in eating habits, spending more than able to afford on medications and creams, restricting other expenses to treat cellulite.

The results of this analysis also allowed the preparation of an initial questionnaire to assess the quality of life of patients who complained about cellulite.

Stage II: Questionnaire preparation and validation

With the identification of the domains and main points referred to in each of them, the initial version of Celluqol® was developed. The initial phase of Stage II included all questions (22 in total, Table 1) in order to validate those that would constitute the final questionnaire. A shortened 8-item version was developed (Table 2) and compared with the full version, to explore its use in daily medical practice.

The scores obtained from the full questionnaire ranged from 22 to 110 points, with the measured changes in quality of life assessed as follows:

From 22 to 44 points – cellulite does not affect quality of life

From 44 to 66 points – cellulite slightly affects quality of life

From 66 to 88 points – cellulite reasonably affects quality of life

From 88 to 110 points – cellulite intensely affects quality of life

The shortened questionnaire's scores ranged from 8 to 40 points, with changes in quality of life interpreted as follows:

From 8 to 16 points – cellulite does not affect quality of life

From 16 to 24 points – cellulite slightly affects quality of life

From 24 to 32 points – cellulite reasonably affects quality of life

From 32 to 40 points – cellulite intensely affects quality of life

RESULTS

After administering the full and shortened versions of the questionnaires to 100 volunteers, their validity and reliability were assessed using Cronbach's factorial and Alpha analyses for statistical evaluations.

FACTORIAL ANALYSIS

An exploratory factorial analysis allowed testing of the hypotheses that all eight questions of the shortened questionnaire measured a single domain or factor (cellulite) and that each block of questions in the full questionnaire measured a single domain or factor of the appraised parameters (manner of dressing, leisure, physical activity, partner, feelings and change of daily habits). A factor was considered dominant if its measured eigenvalues were greater than 1. A component of the matrix of a domain was considered to belong in the factor or domain when its weight was greater than 0.4.

In the evaluation of the shortened questionnaire, it was observed that only one could be deemed the main component, when the greater than 1 eigenvalues criterion was considered. The explained variance was 48.77%, and Cronbach's Alpha, 0.842 (Table 3). The factorial analysis of the full version of the

Table 2: Celluqol (shortened version)

How having cellulite makes you feel about:	Not bothered at all	Not bothered most of the time	Indifferent	Bothered most of the time	Bothered all the time
1. your body's appearance	1	2	3	4	5
2. manner of dressing	1	2	3	4	5
3. your eating habits	1	2	3	4	5
4. leisure or physical activities that involve exposing the body publicly (beach, gym, etc)	1	2	3	4	5
5. leisure or physical activities that require exposing the body in a limited way (massage, medical consultations etc)	1	2	3	4	5
6. your sexual life	1	2	3	4	5
7. 7. your negative feelings (guilt, embarrassment, frustration, low self-esteem, shame, fear, rebelliousness)	1	2	3	4	5
8. difficulties and doubts about the result of treatments, disbelief	1	2	3	4	5

Table 3: Exploratory factorial analysis and internal consistency (Shortened version)

Question (Q)	Evaluated parameter	Factor's weight in the only domain found
		1
Q1	Body's appearance	0,677
Q2	Manner of dressing	0,701
Q3	Eating habits	0,559
Q4	Physical activities with public exposure of the body	0,786
Q5	Physical activities with limited exposure of the body	0,718
Q6	Sexual life	0,839
Q7	Negative feelings	0,764
Q8	Doubts, disbelief regarding treatments	0,467
Applied % of the variance		48,77%
Cronbach's Alpha		0,842

Q = question

Table 4: Exploratory factorial analysis and internal consistency (full version)

Question (Q)	Evaluated parameter	Factor's weight in the 5 domains found				
		1	2	3	4	5
	MANNER OF DRESSING					
QB1a	choice of clothes' colors					0,659
QB1b	choice of clothes' fabric					0,884
QB1c	choice of tight cuts					0,836
QB1d	wearing of very short clothes					0,709
	LEISURE					
QB2a	activities with public exposure of the body				0,549	
QB2b	activities with limited exposure of the body				0,675	
	PHYSICAL ACTIVITIES					
QB3a	physical activity in general				0,621	
QB3b	physical activities with exposure of the body			0,814		
	PARTNER					
QB4a	Exposure of the body to a partner		0,667			
QB4b	Fear of losing partner		0,837			
QB4c	sexual life		0,860			
QB4d	partner notices cellulite		0,725			
	NEGATIVE FEELINGS					
QB5a	embarrassment			0,505		
QB5b	doubts and disbelief about the result of treatments				0,467	
QB5c	guilt	0,669				
QB5d	frustration	0,715				
QB5e	discouragement	0,812				
QB5f	self-esteem	0,695				
QB5g	rebelliousness	0,697				
	CHANGES IN DAILY HABITS					
QB6a	eating habits					0,606
QB6b	restricting expenses to treat cellulite					0,797
QB6c	Restrição gastos					0,802
Applied % of the variance		70,7				
Cronbach's Alpha			0,935			

Q = questão

questionnaire presented five main components when the greater than 1 eigenvalues criterion was considered. The explained variance was 70.72%, and Cronbach's Alpha was 0.935 (Table 4).

DISCUSSION

Since no information was found about previous studies that have validated a specific questionnaire assessing the quality of life for patients with cellulite, it was unfeasible to forecast the variability of answers in the present study. A sample calculation to estimate a proportion was therefore carried out, maximizing the variance and considering a 95% confidence interval. This sample calculation supplied the estimate of 385 patients. Nevertheless the study was conducted with 100 patients. A preliminary analysis was subsequently performed to analyze the behavior of the data and the necessity of including a greater number of patients. As the data showed considerable consistency, it was not necessary to increase the sample size.

The factorial analysis of the shortened questionnaire found that each question measured a single factor or domain: cellulite. This single domain explains 48.77% of the variance, indicating that all questions in the shortened questionnaire effectively refer to cellulite. Since each matrix component presented expressive values, it was not necessary to exclude any questions. In addition, the Cronbach's Alpha (0.842) indicated good internal consistency for the shortened questionnaire (Table 2).

The factorial analysis of the full version of the questionnaire indicated that those questions measured five main factors or domains. Observing the matrix components, it was verified

that all questions corresponding to the “manner of dressing” appeared together in the same domain with expressive values (Table 3). The questions regarding “leisure” and “physical activity” appeared together in the same domain, suggesting that they measure the same parameters. Of the questions considered, it was found that QB3a and QB4b could probably be combined into a single question due to their similarity, with the variables being grouped in a single domain (i.e., without differentiating between leisure and physical activity). All questions regarding the “partner” appeared in the same domain, indicating that they are in accordance with the questionnaire – as well as all questions regarding “changes in daily habits.” The variables relating to “feelings” were generally consistent, appearing in different domains, except for QB5a and QB5b, which were the least expressive and did not appear in the same domain as the others, suggesting they could be modified or excluded. The 0.935 Cronbach’s Alpha indicated good internal consistency in the full version of the questionnaire.

The questionnaire was easy to administer, and the patients did not have difficulty in understanding the questions. The average time of application was five minutes – rather reasonable for clinical use and research.

Comparisons of Celluqol with other quality of life questionnaires should be carried out in the future to assess the correlation of quality of life changes in patients with cellulite with that of patients in general.

CONCLUSION

The authors developed two questionnaires to evaluate the quality of life in female patients with cellulite. Administration of the measurement was straightforward, and the validation analyses demonstrated that both questionnaires could be used with similar efficacy. In daily clinic practice, the shortened version is recommended to evaluate cellulite as the main component of changes in patients’ quality of life. The full version of the questionnaire presented five main components for evaluating patient quality of life; its use is recommended for clinical research. ●

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