

ORIGINAL PAPER

[Translated article] The effect of showing preoperative photographs on patient satisfaction following forefoot surgery



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KEYWORDS

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Abstract

Background: Postoperative outcome measurement typically relies on postoperative radiological results and clinical–functional scales; however, there is a growing interest in considering patient satisfaction (including subjective aspects) as part of the success of forefoot surgery.

Objective: To determine whether showing a preoperative photograph improves satisfaction in postoperative forefoot surgery patients.

Material and methods: An observational, cross-sectional, analytical study was conducted in the foot and ankle unit of our centre. We included 120 participants between 18 and 90 years old who underwent forefoot surgery. The degree of satisfaction was compared using the PSQ-10 questionnaire between a group of patients who received a preoperative foot appearance image at their 3-month postoperative follow-up and those who did not receive it.

Results: The overall satisfaction rate was 78.33% at 3 months after the intervention. The 93.6% of patients who received the photograph were satisfied at the postoperative follow-up, while in the control group, it was 86.2% with a *p* value of 0.218.

Conclusion: The degree of satisfaction in patients undergoing forefoot surgery is not associated with the presentation of preoperative photographs.

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PALABRAS CLAVE

Antepié;
Satisfacción;
Hallux;
Dolor;
Apariencia;
Fotografía

Influencia de la fotografía preoperatoria en el grado de satisfacción en pacientes postoperados de cirugía de antepié**Resumen**

Antecedentes: La medición del resultado posterior a la cirugía típicamente se basa en resultados radiológicos posoperatorios y escalas clínico/funcionales; sin embargo, en la actualidad hay un creciente interés por considerar al grado de satisfacción del paciente (que incluyen aspectos subjetivos) como parte del éxito de la cirugía de antepié.

Objetivo: Determinar si el mostrar una fotografía de la apariencia preoperatoria mejora la satisfacción en los pacientes posoperados de antepié.

Materiales y métodos: Se realizó un estudio observacional, transversal y analítico, en la unidad de pie y tobillo de nuestro centro. Se incluyeron 120 participantes entre 18 y 90 años, que fueron sometidos a cirugía de antepié. Se comparó el grado de satisfacción mediante el cuestionario PSQ-10 entre un grupo de pacientes que recibió, en su control posoperatorio a los tres meses, una imagen del aspecto preoperatorio del pie y aquellos que no la recibieron.

Resultados: El grado de satisfacción total fue de 78,33% a los tres meses de la intervención. De los pacientes que recibieron la fotografía, 93,6% estaban satisfechos en el control posoperatorio, mientras que en el grupo control fue de 86,2% con una $p=0,218$.

Conclusión: El grado de satisfacción en los pacientes sometidos a cirugía de antepié no está asociado a la presentación de la fotografía preoperatoria.

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Introduction

Hallux valgus is the most common condition of the forefoot in the adult population.¹

Pain and discomfort with footwear that can affect daily living activities are the most frequent reasons for consultation.^{2,3}

Postoperative patient satisfaction is beneficial in many aspects, a good doctor/patient relationship is maintained and it also influences the emotional and functional impact and quality of life, so it is important to carry out interventions that can help improve the degree of patient satisfaction.^{4,5}

Typically, measurement of outcome after forefoot surgery has been evaluated with specific foot and ankle clinical/functional scales such as the American Orthopaedic Foot and Ankle Society (AOFAS) scales or the Manchester-Oxford Foot Questionnaire (MOXFQ)⁶ along with the postoperative radiological results evaluated by the surgeon. There is currently a growing interest in knowing how preoperative expectations and the correction of the external appearance of the deformity alter the degree of patient satisfaction.⁷

Satisfaction studies in foot and ankle surgery show very variable results. Some studies show high levels of satisfaction in the postoperative period⁸; However, others report 25–33% of patients not satisfied after hallux valgus surgery.⁹

In the field of orthopaedic surgery, efforts have been made to improve the satisfaction of postoperative patients through various techniques. Albayrak et al. evaluated satisfaction and postoperative results in patients with kyphosis and scoliosis, showing photographs before and after surgery to one group, and without showing photographs to the second group, with the first group obtaining better scores,

both in terms of pain and self-image, mental health and satisfaction.^{10,11}

In foot and ankle surgery, studies evaluating clinical outcomes and appearance are scarce. Bahar et al.¹² conducted a study on patients undergoing surgery for hallux valgus, showing preoperative photography to the first group, and not showing it to the other, finding better results in the first group.

Although it is true that improvement in the appearance of the foot after surgery is not one of the main objectives for the surgeon, in many cases it is for the patients, as shown in some studies, where some importance is attached to this within the expectations they hope to achieve through surgery.^{13–15}

The objective of this study was to determine whether showing a photograph of preoperative appearance improves satisfaction in post forefoot surgery patients.

Material and method

An observational, cross-sectional, analytical and single-centre study was carried out on patients who underwent forefoot surgery during the period between December 2021 and June 2022.

Prior to surgery, patients were invited to participate in the study, and those who met the selection criteria and signed the informed consent were included in the study. The calculated sample size was 120 patients with a power of 82%.

Patients between 18 and 90 years old were included, who underwent forefoot surgery for conditions of hallux valgus, hallux rigidus, minor toe deformities such as claw, club or hammer toes, clinodactyly, bunionette or quintus varus; excluding those with a history of previous forefoot surgeries,



Figure 1 Preoperative photograph of a patient undergoing hallux valgus surgery performed 50cm away from the foot in the same orientation as an anteroposterior radiograph.

or those in whom midfoot or hindfoot surgery was performed in the same surgical procedure.

Measurement tools

The Patient Satisfaction Questionnaire (PSQ-10), a component of the Podiatric Audit of Surgery and Clinical Outcome Measure (PASCOM), was used to assess patient satisfaction. PASCOM is made up of three domains. The first covers surgical treatment, the second relates to postoperative sequelae, and the last contains the patient satisfaction questionnaire, the PSQ-10. The questionnaire includes 10 questions, with a total score from 0 to 100, where 50 or less is considered not satisfied, 51 to 70 as partially satisfied, and greater than 70 as satisfied.

The visual analogue scale (VAS) was used to evaluate pain. Patients are classified as having no pain when the VAS is 0 points, mild pain when it is 1–3 points, moderate pain when it is 4–6 points, and severe pain when it is 7–10 points.

Procedures and data collection

As part of the care protocol, on the day of surgery, patients had a photograph taken of the foot to be operated on. The images were obtained in the presurgical room at a distance of approximately 50 cm from the foot in the same orientation as an anteroposterior radiograph (Fig. 1). Furthermore, the photographs were taken by the same person

and with the same camera, to be stored in the hospital's operating system. The assignment of patients to each group (photography/non-photography) was carried out using the convenience sampling technique. The principal investigator was not involved in the subsequent care and follow-up of the patients.

Follow-up was carried out 10 days after the intervention, 6 weeks and 3 months postoperatively, in which clinical and radiological control was carried out. The PSQ-10 satisfaction questionnaire was carried out at the 3-month post-intervention control.

Of the participants included in the study, 53 of them were shown the preoperative photograph. To do so, they were given the time they believed necessary so that, after removing their shoes and socks, they could compare it with their current appearance. Subsequently, they were approached by collaborating researchers for data collection; as well as the completion of the PSQ-10 survey to assess the degree of postoperative satisfaction and the assessment of pain using the VAS, classifying as no pain, mild pain, moderate pain and severe pain. For the participants who were not shown the preoperative photograph, the visit continued as usual, and at the end the same questionnaires were delivered and filled out.

Additionally, in an exploratory manner, three questions from the PSQ-10 satisfaction questionnaire were analysed individually, which assessed compliance with previous expectations, improvement in appearance, and whether the same procedure would be performed again if necessary.

The results were introduced into a database for subsequent analysis in the STATA® version 15.0 statistical programme.

Statistical analysis

Taking the study by Bahar et al.¹² as a reference, patients who met the inclusion criteria with a P1 of 90% (percentage of satisfaction in the photography group) and P2 of 70% (percentage of satisfaction in the group that did not receive the photograph) were included in the study. The estimated sample size was between 120 and 150, with a power of 71.5% and 82.3%, respectively. A sample size of 130 participants was found with a power of 82.3%, which were recruited until the sample size was met.

The statistical analysis of the study was performed using STATA® Statistical Software: Release 16 (StataCorp, College Station, TX, 2019).

To perform the univariate analysis between the study variables (receiving presurgical photography and postoperative satisfaction), the Chi-square test was used. Logistic regression was used in the multivariate analysis. A confidence level of 95% and a power of 82% was considered.

Results

The average age of the participants was 61.7 years (55% under 65 years of age), with the majority being women (87.5%). The most frequent surgery was hallux valgus correction combined with surgical correction of the lateral minor toes (37.5%), followed by isolated hallux valgus correction (34.2%) and surgery of the minor toes (28.3%). Table 1 shows

Table 1 Variables studied in both groups.

	Percentage	Photograph		<i>p</i> value
		No	Yes	
Age				
Under 65	55	34 (51.5%)	32 (48.5%)	.292
65 years or over	45	33 (61.1%)	21 (38.9%)	
Sex				
Woman	87.5	58 (55.2%)	47 (44.8%)	.728
Man	12.5	9 (60%)	6 (40%)	
Surgery				
Hallux valgus	34.1	24 (58.5%)	17 (41.5%)	.476
Lesser toes	28.3	21 (61.8%)	13 (38.2%)	
Hallux valgus + lesser toes	37.5	22 (48.9%)	23 (51.1%)	

p value is calculated using the Pearson Chi-square test.

the demographic variables and type of surgery of the sample studied, showing no significant differences between the study groups, making them comparable.

The level of satisfaction at 3 months obtained in the PSQ-10 survey showed that 78.33% felt satisfied, 9.17% were not satisfied and 12.5% were partially satisfied, the latter being excluded from the main analysis. Excluding patients with a partial degree of satisfaction (15 participants, whose score was between 51 and 70 points), resulted in 93.6% of the patients who received the photo being satisfied in the post-operative control, while in the control group it was 86.2%; However, this difference was not statistically significant in the Pearson Chi-square test, with a *p* value of .218 (Table 2).

Eighty point eight per cent of patients reported that their expectations had been met, 10% that they were partially met, and 9.1% that they were not met. In the group that received the photo, it was found that 88.7% had their expectations met, 5.7% considered that their expectations were partially met and 5.7% considered their expectations were not met, while in the control group the percentages were 74.6%, 13.4% and 11.9%, respectively, without the difference between the two groups being statistically significant (*p* = .151).

Regarding the perception of improvement in appearance, 93.3% considered a slight to marked improvement vs. 6.7% considered it equal to much worse. In the group that received the photograph, 94.3% rated it as slightly to much better, while in the group without a photo the percentage was 92.6%. The difference between both groups was insignificant (*p* = .49).

Regarding pain, 37.5% of the operated patients reported pain 3 months after surgery (11% mild, 19% moderate and 8% severe), being absent in the rest of the patients (VAS = 0). In the group that received the photograph, 66% reported no pain vs. 59% in the control group, although the difference was not significant (*p* = .47). In the group that received the photograph, 15% reported mild pain, 15% reported moderate pain, and 3% reported severe pain, compared to the control group, which reported 7%, 22%, and 10%, respectively.

Furthermore, 78.3% of those who underwent surgery stated that they would repeat the surgery and undergo surgery again. When comparing both groups, it was found

that 86.8% of those who received the photograph stated this vs. 71.6% of the control group. Here there was a statistically significant difference (*p* = .045).

The degree of patient satisfaction was analysed according to the intensity of pain they reported, finding that the greater the pain, the lower the percentage of satisfaction, this difference being statistically significant using Fisher's exact test (*p* < .005) (Table 3).

Discussion

Previous literature suggests that reminding the patient of the preoperative appearance of their foot through the use of photographs improves the degree of satisfaction after the intervention.^{10,12,16} Our results show that 93.6% who received the photograph were satisfied vs. 86.2% in the control group. However, this difference was not statistically significant. It should be noted that in this study the degree of dissatisfaction was low (9.17%), compared to other studies, where they report up to 33% dissatisfaction.¹⁷ Showing the photograph could suggest that it improves the patient's degree of satisfaction by reminding them of their situation before surgery, since there are studies that report that post-operative patients minimise pain and overvalue the function they had prior to the intervention.¹⁸

Typically, the success of the surgery depended on the postoperative radiographic result,^{19,20} but the importance of other variables that have greater weight for the patient is increasingly recognised, among them the appearance of the foot, being an important variable in the degree of overall satisfaction. In this study, patients considered a slight to marked improvement in appearance in 93.3%, finding no significant difference between both groups. On the other hand, it was found that 78.3% of the patients reported that they would repeat the surgery, with the percentage being higher in those patients who compared the photograph with the current appearance, finding a statistically significant difference. This could explain why some studies report an improvement in satisfaction. However, a new study would be required to demonstrate this association, given that this analysis was exploratory and was not related to radiological or functional results.

Table 2 Association between level of satisfaction versus independent variables.

	Satisfaction		<i>p</i> value
	Unsatisfied	Satisfied	
<i>Preoperative photograph</i>			
Yes	3 (6.4%)	44 (93.6%)	.218*
No	8 (13.8%)	50 (86.2%)	
<i>Age</i>			
Under 65	5 (8.8%)	52 (91.2%)	.534*
65 years or over	6 (12.5%)	42 (87.5%)	
<i>Sex</i>			
Female	9 (9.9%)	82 (90.1%)	.617*
Male	2 (14.3%)	12 (85.7%)	
<i>Surgery</i>			
Hallux valgus	4 (10.5%)	34 (89.5%)	.413*
Lateral toes	1 (4.0%)	24 (96.0%)	
Hallux valgus + lateral toes	6 (14.3%)	36 (85.7%)	
<i>Pain</i>			
No pain	1 (1.5%)	67 (98.5%)	.000**
Mild pain	2 (16.7%)	10 (83.3%)	
Moderate pain	3 (15.8%)	16 (84.2%)	
Severe pain	5 (83.3%)	1 (16.7%)	

* Pearson Chi-square.

** Exact Fisher test.

Table 3 Baseline characteristics of the sample studied.

	Percentage	Photograph		<i>p</i> value
		No	Yes	
<i>Expectation</i>				
Not met	9.1	8 (11.9%)	3 (5.7%)	.151*
Met	74.6	50 (74.6%)	47 (88.7%)	
Partially met	13.4	9 (13.4%)	3 (5.7%)	
<i>Improvement in appearance</i>				
Same or worse	6.7	5 (7.46%)	3 (5.7%)	.496**
Lightly better	93.3	62 (92.6%)	50 (94.3%)	
<i>Postoperative pain</i>				
No pain	62.5	40 (59.7%)	35 (66%)	.476*
Pain	37.5	27 (40.29%)	18 (34%)	
<i>Repeat surgery</i>				
No	21.7	19 (28.3%)	7 (13.2%)	.045*
Yes	78.3	48 (71.6%)	46 (86.8%)	

p value calculated using the Pearson Chi-square test.

* Pearson Chi-square.

** Exact Fisher test.

The relationship between the intensity of pain and the degree of satisfaction was analysed, finding that 98.5% of patients who did not have pain were satisfied vs. 83.3% of those who had mild pain, 84.2% of those who had moderate pain and 16.7% of those who had severe pain. This difference was statistically significant, and supports the idea that the improvement in pain is the main determinant of one's overall level of satisfaction.

The results of this study show that the degree of overall dissatisfaction was low, the majority reported no or mild pain in the postoperative period and the majority of patients would repeat the surgery.

Our study has several limitations such as selection bias when using the convenience sampling technique, because the presurgical photographs were always taken by the same person. Another limitation is that the PSQ-10 satisfaction

rating scale of the PASCOM questionnaire was used without cross-cultural adaptation. Even so, this scale has been chosen for use in the PASCOM questionnaire due to its reliability and repeatability,²¹ being one of the most used questionnaires in the literature to measure patient satisfaction. Likewise, this research lacks a clinical/functional scale to be able to carry out an objective assessment that allows us to compare it with the level of satisfaction and its relationship with the aesthetic result.

Conclusion

We conclude that the degree of satisfaction in patients undergoing forefoot surgery is not associated with the presentation of the preoperative photograph.

Level of evidence

Level of evidence II.

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Conflict of interests

The authors have no conflict of interests to declare.

Ethical disclosures

The protocols established in our centre for accessing data from medical records were followed in order to carry out this study for research purposes and for the benefit of the scientific community.

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