



Use of Patient-Reported Outcome Measures in Foot and Ankle Surgery in Chile

Uso de cuestionarios reportados por pacientes en cirugía de pie y tobillo en Chile

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Rev Chil Ortop Traumatol 2023;64(1):e30–e35.

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Abstract

Objective To describe the use of patient-reported outcome measures (PROMs) in foot and ankle surgery.

Materials and Methods A cross-sectional, descriptive study in which an original survey was developed and applied to assess the use of PROMs in Chile. Traumatologists dedicated to foot and ankle surgery were invited to participate.

Results A total of 73 out of 110 surgeons answered the survey; 75% of them have used PROMs at least once in their career, and 50% use them regularly. Mainly used for clinical research purposes (83%), PROMs are mostly applied by the clinical team (94%). We identified 15 different questionnaires that are applied in our field, and the ones most used are the visual analogue scale (VAS), the Ankle-Hindfoot Scale of the American Orthopaedic Foot and Ankle Society (AOFAS), the 36-item Short Form Health Survey (SF-36), and the Foot and Ankle Outcome Score (FAOS). The surveyed surgeons who do not use PROMs referred lack of information, time, and trained personal as the main limitations for their use.

Conclusion In total, 75% of the surveyed traumatologists dedicated to foot and ankle surgery in Chile have used PROMs in their clinical practice. There is a broad variety of questionnaires applied and, to the best of our knowledge, the present is the first study to evaluate their application in our field.

Level of evidence: 4

Keywords

- ▶ patient reported outcome measures
- ▶ foot and ankle surgery

Resumen

Palabras Clave

- ▶ medidas de resultados reportados por pacientes
- ▶ cirugía de tobillo y pie

Objetivo Describir el uso de los cuestionarios reportados por pacientes (*patient-reported outcome measures*, PROMs, en inglés) en cirugía de tobillo y pie en Chile.

Materiales y métodos Estudio descriptivo, transversal, en el que se diseñó y se aplicó una encuesta para conocer el uso de PROMs en Chile. Se invitó a participar a los traumatólogos cuya actividad principal fuese la cirugía de tobillo y pie.

Resultados En total, 73 de 110 traumatólogos contestaron la encuesta. El 75% de los encuestados ha utilizado PROMs al menos una vez, y el 50% los utiliza de manera

received
August 6, 2021
accepted
February 14, 2022

DOI <https://doi.org/10.1055/s-0042-1748928>.
ISSN 0716-4548.

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Thieme Revinter Publicações Ltda., Rua do Matoso 170, Rio de Janeiro, RJ, CEP 20270-135, Brazil

regular. La finalidad con la que se utilizan es principalmente de investigación (83%), y su aplicación es realizada la mayoría de las veces por los médicos del equipo (94%). Se identificaron 15 cuestionarios distintos aplicados en nuestro medio, siendo los más utilizados la Escala Visual Análoga (EVA), la Escala de Tobillo y Retropié de la American Orthopaedic Foot and Ankle Society (AOFAS), el 36-item Short Form Health Survey (SF-36), y la Escala de Resultados de Tobillo y Pie (Ankle and Foot Outcome Score, FAOS, en inglés). Los encuestados que no han utilizado estos cuestionarios señalaron como principales limitantes la falta de información, de tiempo y de personal capacitado.

Conclusión El 75% de los traumatólogos dedicados a la cirugía de tobillo y pie encuestados ha utilizado PROMs en su práctica clínica. Existe una amplia variedad de cuestionarios aplicados, y el presente estudio constituye la primera aproximación de su aplicación en nuestro medio.

Nivel de evidencia: 4.

Introduction

Patient-reported outcomes measures (PROMs) are standardized tools aimed at learning the patient's perspective regarding their health status, functionality, or well-being.¹ These results can be measured in different fields, such as quality of life, mobility, pain or ability to perform activities of daily living,² and they enable the assessment of the quality of the health care provided.³ These questionnaires were designed to be used in the clinical practice, but, currently, they are also used in research because they enable the systematic collection of information and the comparison of clinical outcomes in different contexts.⁴

Three fields covered by this type of questionnaire are applicable to traumatology and orthopedics: the first one corresponds to quality of life, the second, to the evaluation of a specific anatomical segment (such as the hand, hip, knee, ankle and foot), and the third one refers to the evaluation of a specific pathology (Achilles tendinopathy, osteoarthritis etc.).

In ankle and foot surgery, a wide spectrum of self-reported questionnaires is used by patients, and we have identified up to 139 different measures used in the main journals of the subspecialty, with no consensus on which is the ideal measure to apply in the clinical practice.^{2,5}

During the last 25 years, the interest in these questionnaires has grown exponentially, which has generated new questionnaires and expanded these tools to different languages and cultures, helping in the decision-making process regarding specific patients and public health in general.^{6,7}

Patient-reported outcome measures must be validated in the specific population on whom they will be applied; thus, the questionnaires must be translated and culturally-adapted in order to preserve the measuring properties of the tool. Otherwise, one cannot be sure that the questionnaire measures what it is supposed to measure, or that it is capable of detecting changes in the patient's health status; therefore, they should not be used or reported.⁸

At present, there are PROMs validated for the Chilean population that can be used in ankle and foot surgery, but we do not know how they are being used in our field, nor which

questionnaires are used most frequently, which makes communication among Chilean surgeons difficult.

The primary objective of the present study is to describe the use of PROMs in the field of ankle and foot traumatology and orthopedics in Chile. The secondary objectives are to know the purpose, format, the people in charge of management during their application, and the type of questionnaires used.

Materials and methods

The present is an observational, cross-sectional study in which traumatologists dedicated to ankle and foot surgery according to the registry of Sociedad Chilena de Ortopedia y Traumatología (Chilean Society of Orthopedics and Traumatology, SCHOT, in Spanish) were invited to participate. A survey was designed in digital format by the research team and was reviewed by ten specialist traumatologists to corroborate adequate understanding. It consisted of 16 questions, 4 of them intended to explore the social and professional characteristics of the respondents, 1 question to categorize whether the respondents have used these questionnaires or not, 7 questions that inquire about the year they have begun using PROMs, the purpose, the format, the people in charge of management during the application, the category of the PROM, and the specific questionnaires used. For those who have not used PROMs, three questions were asked about the factors that limit or prevent their use. Finally, everyone was asked if they were interested in increasing their knowledge regarding this type of questionnaire (► **Table 1**). In 7 questions, choosing more than one alternative was allowed.

An invitation was sent to the email address registered in the SCHOT database in June 2020, and a reminder was subsequently sent to the respondents who still had not responded at 2 and 3 weeks. Data collection was closed one month after the initial invitation. Incomplete forms were excluded from the data analysis. All responses were anonymous.

Table 1 Items and questions of the survey applied to the participants

Item	Question
Use of PROMs	Do you normally use PROMs in your clinical practice?
Yes, I do	
Beginning of use	When did you first use PROMs?
Purpose	For what purpose have you used PROMs?
Format	Which PROM formats have you used?
Person in charge	Which professionals are in charge of applying these questionnaires in you work team?
Category	Indicate which of the following categories of PROMs you have used
Questionnaire	Indicate which of the following PROM(s) you have used
No, I don't	
Limitations	What have been the limitations to implement the application of these questionnaires?
Interest	Are you interested in applying this type of tool to your patients?

Abbreviation: PROMs, patient-reported outcome measures.

The data was tabulated in Excel (Microsoft Corp., Redmond, WA, US) spreadsheets, and a descriptive analysis, in which absolute and relative frequencies were reported, was performed using the Stata (StataCorp LLC, College Station, TX, US) software, version 14.

The present study was approved by the scientific ethics committee of our institution (ID: 200520004).

► **Table 1:** Items and questions of the survey applied to the participants

Results

Characteristics of Respondents

The survey was answered by 73 of the 110 traumatologists invited. In total, 94% (n = 70) of the respondents were male, with a median age of 39 years, a minimum age of 29 years, and a maximum age of 64 years. Overall, 67% (n = 49) of the sample had formal training or a fellowship in ankle and foot surgery. The respondents were affiliated to hospitals belonging to the governmental health services, university hospitals, hospitals dependent on mutual insurance associations, and private clinics. Of those surveyed, 52% (n = 38) reported working in more than one center.

Use of PROMs

Of the total number of respondents, 75.3% (n = 55) reported having used PROMs at some point, and 49.1% (n = 27) of those reported using them regularly.

Year they have started using PROMs

When asked about the year in which they began to use the questionnaires, we observed that 4 respondents (7.3%) had begun to use these tools prior to 2000, 10 (18.2%), between 2000 and 2010, and 41 (74.5%), between 2010 and 2020.

Purpose

In total, 16.4% (n = 9) of the PROM users do so for clinical purposes, and 34.6% (n = 19), for research. And 49.1% (n = 27)

of the PROM users reported using them simultaneously for clinical and research purposes.

Data Collection Format

Overall, 61.8% (n = 34) of the respondents apply the PROMs in an analog way, while 5.5% (n = 3) do so digitally; 32.7% (n = 18) of the respondents apply them using both methods.

Management of Questionnaire Application

In 52.7% (n = 29) of the cases, the treating traumatologist is in charge of the management of the application of these questionnaires. In 41.8% (n = 23) of the cases, this work is shared between the doctor and other members of the team, mainly nurses or kinesiologists. Only in 5.5% (n = 3) of the cases there are other professionals who exclusively manage the application of these questionnaires (kinesiologists, clinical psychologists, and administrative personnel).

Specific Categories and Questionnaires

Regarding their purpose and design, PROMs were grouped into 3 categories (**table 2**): 87% of the questionnaires are on quality of life, 51%, on the ankle and foot, and 23%, on specific pathologies. We identified 17 different questionnaires used in our field (**table 3**), and the most used is the Visual Analog Scale (VAS), the American Orthopaedic Foot and Ankle Society's (AOFAS) Ankle-Hindfoot Score, the 36-item Short Form Health Survey (SF-36), and the Foot and Ankle Outcome Score (FAOS).

► **Table 2:** Categories and proportion of use of PROMs in our field.

Table 2 Categories and proportion of use of PROMs in our field

PROM category	n (%)
Quality of life or general	58 (87.3%)
Specific segment of ankle and foot	51 (92.7%)
Specific pathology	13 (23.6%)

Abbreviation: PROMs, patient-reported outcome measures.

Table 3 Questionnaire and rate of use

Questionnaire	n	%
Visual Analog Scale (VAS)	51	92.7
American Orthopaedic Foot and Ankle Society's (AOFAS) Ankle-Hindfoot Scale	45	81.8
36-item Short Form Health Survey (SF-36)	33	60.0
Foot and Ankle Outcome Score (FAOS)	16	29.1
Foot and Ankle Ability Measure (FAAM)	15	27.3
12-item Short Form Survey (SF-12)	9	16.4
Victorian Institute of Sport Assessment-Achilles Questionnaire (VISA-A)	8	14.5
Short Musculoskeletal Function Assessment (SMFA)	7	12.7
Achilles tendon rupture score	7	12.7
EuroQol 5 Dimensions (EQ-5D)	4	7.3
Patient-Reported Outcomes Measurement Information System (PROMIS)	3	5.5
Ankle osteoarthritis scale	3	5.5
Foot and Ankle Disability Index (FADI)	3	5.5
Musculoskeletal Function Assessment (MFA)	2	3.6
The Manchester-Oxford Foot Questionnaire (MOXFQ)	1	1.8
Cumberland Ankle Instability Tool (CAIT)	1	1.8
The Lower Extremity Functional Scale (LEFS)	1	1.8

►Table 3: Questionnaire and rate of use

A total of 24.7% (n = 18) of the ankle and foot surgeons surveyed stated that they did not use PROMs. When asked about their interest in using them, 83.3% (n = 15) reported being interested, and 61.1% (n = 11) had already discussed the implementation of these questionnaires with their work team.

Respondents who had not used these questionnaires pointed out the lack of information, time, and personnel to carry out this task as the main limitations (►Figure 1), and 93.2% (n = 68) of the respondents are interested in deepening their knowledge of these questionnaires.

►Figure 1: Limitations for the use of PROMs according to respondents who do not use them

Discussion

The objective of the present study was to describe the use of PROMs in ankle and foot traumatology and orthopedics in Chile. The survey was answered by 73 professionals, mainly of whom male, and 67% (n = 49) with formal training or a fellowship in ankle and foot surgery.

In total, 75.3% of those surveyed reported having used PROMs at some point, a scenario similar to the 83% reported by Zwiers et al.⁹ in 2018, and higher than the 55% reported by Lau et al.¹⁰ in 2005. In our sample, we were able to observe that most of those who use these questionnaires began to do so in the last decade, which seems to be in line with the aforementioned studies and with the increase in publications on patient-reported outcomes.

In the present study, we observed that these questionnaires are used in our field mainly for clinical and research

purposes. It has been reported in the literature⁷ that most surgeons use these questionnaires for research purposes (72%) and, to a lesser extent, for clinical support (34%), or to assess the quality of care (34%). It is important to mention that these questionnaires are designed mainly for clinical purposes, which is why international associations such as the AOFAS recommend the use of PROMs in all patients, mainly for clinical purposes.⁵

Regarding the application and recording of PROMs, we observed that surgeons prefer to use analog methods (61.8%, n = 34). It has been shown⁷ that the use of digital methods, such as 'cloud' platforms, facilitates access to information to carry out research and implement improvements in hospital practices. Also, storing analog records poses a risk of loss of information as there is no digital backup, and it more time is spent in case there is a need to transfer the information to digital formats to be applied for research or other purposes. Regarding this, there is need for improvement in application and record system of these tools in our environment.

Regarding the people in charge of managing the application, we observed that it is mainly the doctors who collect patients' answers. These questionnaires are designed to be filled out by the patient; therefore, this process could be optimized through automatic systems. The shorter the survey, the easier it is to understand, and the fewer interruptions to the process, the better the adherence of the patient regarding its use.² Zwiers et al.⁹ investigated the reason that leads users to choose a certain PROM over others, and the main reason was speed and ease of use (71%), followed by extensive use in the literature (68%). Therefore, this process must be planned with the aim of

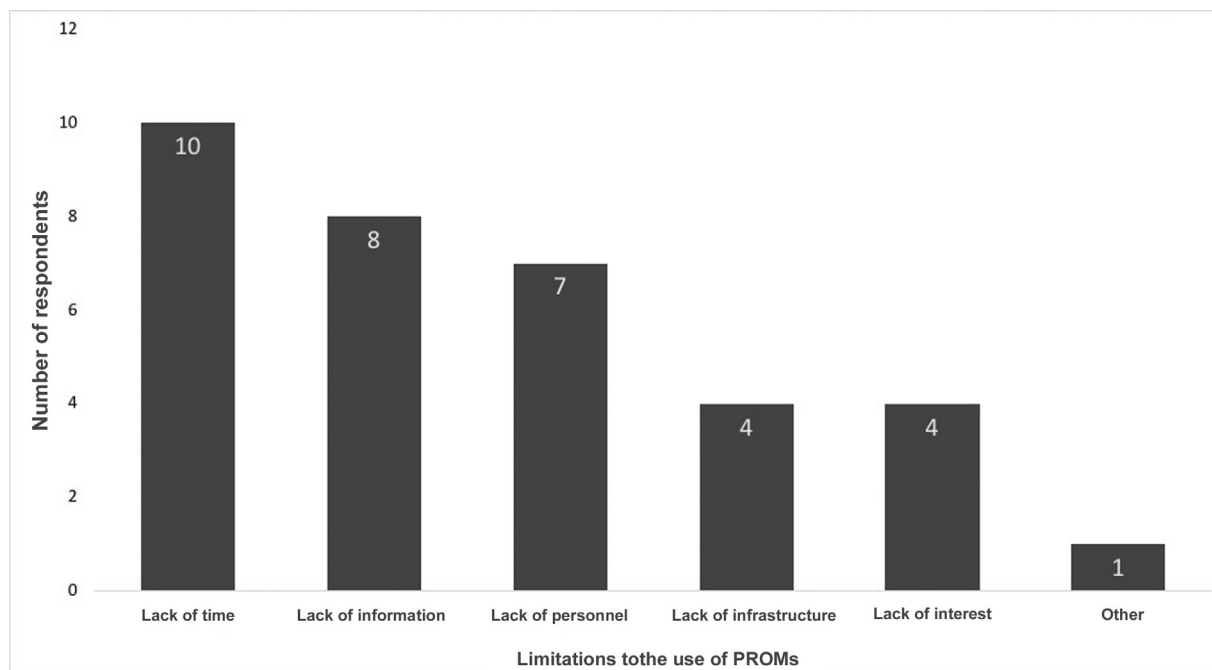


Fig. 1 Limitations to the use of PROMs according to respondents who do not use them.

optimizing time in patient care, and offering care adapted to their needs.

We identified 17 PROMs used in our field, and the 5 most used are the VAS, the AOFAS score, the SF-36, the FAOS, and the Foot and Ankle Ability Measure (FAAM). Regarding the category of the questionnaires used, a clear predominance was observed in the use of tools that evaluate a specific segment (ankle and foot) and quality of life over those that evaluate outcomes regarding a specific pathology. These results are similar to those reported by other authors,⁶ and up to 89 different ankle and foot measures have been identified, and the most used are the AOFAS score, the SF-12, the SF-36, the FAOS, the FAAM, and the Manchester-Oxford Foot Questionnaire (MOXFQ).

Many questionnaires are used in our field, which makes communication and scientific collaboration difficult. Achieving agreement on the measures to be used in our context would enable the standardization of the compilation of patient-reported outcomes and, therefore, monitoring over time in order to increase their use.¹¹

It is important to mention that, to use a PROM in the clinical practice or for research, it must first undergo a cultural validation process regarding the country where it will be used; this is necessary to ensure that the tool is capable of measuring what is expected. Overall, 12 questionnaires applicable in ankle and foot surgery have been translated into Spanish,¹²⁻²² and, of these, only the EuroQol 5 Dimensions (EQ-5D), the SF-12, the FAOS and the Victorian Institute of Sport Assessment-Achilles Questionnaire (VISA-A) have undergone a cultural adaptation process that enables them to be used safely in Chile.^{16,19,23} Translation, cross-cultural adaptation and validation can be long, difficult or expensive processes; however, they are essential when using a PROM in the clinical practice.¹¹

We observed that the second most used questionnaire in our field is the AOFAS score; although it still is one of the most used in the world, it presents several issues. Therefore, in 2011, the AOFAS advised against its use.²⁴ This questionnaire contains a section to be filled out exclusively by the doctor, which hinders it from being classified as self-reported. In addition, it has not been translated into Spanish nor culturally-adapted for Chile, so it should not be used in our field either.

Within the group that does not use PROMs, their interest in learning about the use of these questionnaires stands out. There is an opportunity to improve the use of these questionnaires, emphasizing the promotion of information on the advantages and usefulness of these tools. In turn, it is important to search for means to reduce the time involved in the application of PROMs, since this was the main barrier identified.

The main limitations of the present work are the selection of participants, since there is no national registry of ankle and foot subspecialists, which is why traumatologists affiliated to SCHOT were invited to participate. Other limitations include the low response rate (66%, 73 of 110) and the use of an unvalidated tool.

Conclusion

The main advantage in the use of PROMs is the ability to objectify the clinical outcomes of different treatments in patients and compare them objectively within a given population, as well as the ability to extend this comparison to other countries. In the present study, 75% (n = 55) of traumatologists dedicated to ankle and foot surgery in Chile have used PROMs in their clinical practice, and there is a wide variety of questionnaires applied in our setting. Most of them

are interested in continuing to learn about the use and usefulness of these questionnaires, which is a potential area of research.

Conflict of Interests

The authors have no conflict of interests to declare.

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