Design and validation of a patient experience assessment instrument for the outpatient pharmacy department journey

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ABSTRACT

Objective: To design and validate an instrument to evaluate the experience reported by patients in their Outpatient Pharmacy Department (OPD) journey.

Methods: Multicentre study in three hospitals in Valencia, Spain, carried out between November 2021 and April 2022. The study was structured into the following phases: 1) Identification of the stages experienced by patients in their OPD journey; 2) Literature review and drafting of the questionnaire; 3) Validation of the questionnaire by a panel of experts; 4) *PRE-piloting* in which the feasibility of the questionnaire was evaluated by measuring clarity and effectiveness; and 5) *POST-piloting* in which the psychometric evaluation of the questionnaire was performed by measuring the reliability (Cronbach's alpha) and the validity of the questionnaire (Kaiser-Meyer-Olkin test and principal component factor analysis). The statistical software IBM SPSS 27 was used for the statistical analysis.

Results: The final questionnaire consisted of a timeline on which patients were asked to mark how they felt at each of the 8 stages of their OPD journey, as well as 10 statements that patients were required to rate on a 5-level scale. The 30 respondents in the *PRE-piloting* phase showed a clear understanding of the statements and the grouped relevance showed high values, with all of them being equal to or higher than 107 out of 120, which implied a minimum alignment of 90%. In the *POST-piloting* phase, the survey was completed by 200 patients, obtaining a Cronbach's alpha coefficient of 0.810. The Kaiser-Meyer-Olkin measure of 0.857 and Bartlett's test at the <0.01 level of significance enabled an exploratory factor analysis that showed a probable structure of three independent factors, which together explained 62.36% of the total variance.

Conclusions: A feasible, reliable, and valid instrument has been designed and validated to measure the experience reported by patients on their OPD journey and to facilitate the adoption of patient-centred care approaches by Pharmacy Services.

Keywords: **Patient experience, instrument, PREM, validation, pharmaceutical care, outpatients.**

Diseño y validación de un instrumento de evaluación de la experiencia del paciente en su viaje a las Unidades de Atención Farmacéutica al Paciente Externo

RESUMEN

Objetivos: Diseñar y validar un cuestionario de evaluación de la experiencia reportada por el paciente en su viaje a las Unidades de atención Farmacéutica al Paciente Externo (UFPE).

Métodos: Estudio multicéntrico en 3 hospitales llevado a cabo entre noviembre de 2021 y abril de 2022. Las fases en las que se estructuró fueron: 1) Identificación de las etapas que experimenta el paciente en su viaje a la UFPE, 2) Revisión bibliográfica y creación del cuestionario, 3) Validación del cuestionario por un panel de expertos, 4) *Pilotaje PRE* en el que se evaluó la factibilidad del cuestionario midiendo claridad y eficacia, y 5) *Pilotaje POST* en el que se realizó la evaluación psicométrica del cuestionario midiendo la fiabilidad (alfa de Cronbach) y validez del mismo (prueba de Kaiser-Meyer-Olkin y análisis factorial de componentes principales) mediante el programa estadístico SPSS versión 27.

Resultados: El cuestionario definitivo estuvo formado por un cronograma en el que se le pedía al paciente que marcase como se sentía en cada una de las 8 etapas de su viaje a la UFPE y por 10 enunciados que los pacientes tenían que valorar en una escala de 5 niveles. Los 30 encuestados en la fase de *pilotaje PRE* demostraron entender de forma clara los enunciados y la relevancia agrupada mostró valores elevados siendo todos ellos iguales o superiores a 107 sobre 120, lo que supuso un alineamiento mínimo del 90%. En la fase de *pilotaje POST* la encuesta se pasó a 200 pacientes, obteniendo un coeficiente alfa de Cronbach de 0,810. La medida de Kaiser-Meyer-Olkin de 0,857 y la prueba de Bartlett <0,01 permitió hacer un análisis factorial exploratorio que mostró una estructura probable de 3 factores independientes, que en su conjunto explicaban el 62,36% de la varianza total.

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Conclusiones: Se ha diseñado y validado un instrumento factible, fiable y válido para medir la experiencia reportada por los pacientes en su viaje a la UFPE y facilitar la adopción de enfoques de atención centrados en el paciente por parte del Servicio de Farmacia.

Palabras clave: **Experiencia del paciente, cuestionario, PREM, validación, atención farmacéutica, pacientes externos.**

INTRODUCTION

Quality in care has always been a priority for healthcare professionals. Despite safety and effectiveness being defined as the two fundamental pillars, today the concept of quality goes together with the patient perspective and is materialised in the idea of value[1]. Healthcare must improve value from the perspective of those who receive the service. There are therefore increasingly more opinions that establish patient experience as the third pillar of care quality[2], with this aspect also being key for improving healthcare in the context of person-centred care[3].

Patient experience is defined as the sum of all the interactions between the patient and the health system, in the framework of a specific organisation culture that influences the perception of the person receiving care[4]. The concept of the patient journey, the process in which the patient and professionals share action and information flows through various points of contact, comes to the fore in the hospital context. On the one hand, the objective of health providers is to manage the flow of patients to offer safe and efficient care while also guaranteeing the best use of hospital resources. Poor patient flow may result in decreasing levels of productivity, increasing the risk of harming patients and reducing the levels of care that they perceive. On the other hand, the objective of patients is to receive the best care together with a high-quality service; in fact, it is the patient who is the only actor to experience the entire journey, connecting each stage. Therefore, hospitals can significantly improve the quality of the service offered by exploring and understanding the individual patient process[5].

Satisfaction has typically been used to show the impact of care on those who receive it. However, the current trend suggests going beyond satisfaction to take an interest in aspects of the care process that define the experience of those people in the hands of the health system. Patient experience is measured using instruments (in print or digital format, or via telephone) distributed to patients, who give their opinion, enabling person-centred care to be improved. These instruments must be tested, assessed, and validated for a patient group or for patients undergoing a specific clinical process.

In 2017, the OECD recommended collecting indicators that were of interest to people receiving care in the framework of the Patient Reported Indicators Surveys (PaRIS)[6]. The patients' assessment of their experience, Patient Reported Experience Measures (PREMs), focuses on the humanity of their care and its value. In contrast with satisfaction, the characteristics/events of patient interaction with the health system are objectively assessed. Therefore, the PREMs are tools that take a snapshot of what happens in the patient-health system interaction and what it is like from the patient's perspective[7].

For the aforementioned reasons, it is of interest to address the macro-journey that patients cover in their health problems to gain an insight into their overall experience. In this sense, this work focuses on a key step for hospital pharmacy services, the Outpatient Pharmacy Department (OPD) patient journey. In recent years, the volume and profile of patients receiving care in OPDs have changed substantially, taking on increasing importance, from both an economic management and care strategy point of view. Today, overcrowding and significant technological development with serious signs of dehumanisation is the reality in the majority of OPDs. Therefore, these departments must be the focus of hospital pharmacy services, which not only have the duty to improve the clinical, epidemiological and economic health results of their patients, but also the humanistic results, understood as the measure for the quality of patient satisfaction with the pharmaceutical care received[8].

Given that the evidence obtained or reported by patients is an essential source of information for the improvement of care, the objective of this work is to design and validate a questionnaire that offers an insight into the experience reported by patients when visiting the OPD, guaranteeing that this information is reliable, valid and applicable[9].

METHODS

Multi-centre study in three hospitals in Valencia, Spain, carried out between November 2021 and April 2022. This study obtained the favourable opinion of the Ethics Committees for Research with Medicinal Products (CEIm) of the Hospital General Universitario de Castelló. The work sequence involved in the design of the survey about the OPD patient journey, and its assessment is summarised in the following phases:

1. Identification of the different stages that patients experience on their OPD journey and their representation on a continuous timeline. To this end, the available publications on how to build the patient journey from the detection of a health problem were examined[10-13].

2. Drafting of the questionnaire following a bibliographic review and verification that there were no previously published validated questionnaires measuring the patient experience in their contact with outpatient pharmacy clinics. For the design, published and validated questionnaires on PREM in other care contexts were consulted, as well as the literature referring to the critical elements for patient experience in relation to health services[14-17]. Different aspects were considered when drafting the questionnaire, as follows: clarity of the wording, consistency with the objective to be studied, only one aspect to be asked about in each question and a maximum number of 10 items, which must follow the chronology of the OPD patient journey.

3. The different stages of the OPD patient journey and the questionnaire were reviewed by an expert panel comprising eight hospital pharmacists and a professional from the department of communication and design. This review was carried out in two rounds via email, following various video conference sessions. Regarding the original questionnaire, changes were made to the wording of some of the statements, as well as to the order of some

of them, always after a majority agreement had been reached by the experts, obtaining a final questionnaire with 10 items. A final section was also added to the survey so that the patients could express aspects that were not covered previously.

4. Once the definitive questionnaire was obtained, the *PRE-piloting* phase was carried out. The aim was to identify those statements that may be irrelevant in terms of the study objective or unclear to a heterogenous group of people (patients, hospital pharmacists, nurses, pharmacy technicians). In doing so, the feasibility of the questionnaire was assessed. This phase was completed by 30 people who were required to assess the clarity (dichotomous scoring 0–1) and relevance (score from 1 to 4) of each of the 10 items.

5. Finally, the psychometric evaluation of the questionnaire was performed in the *POST-piloting* phase. The definitive questionnaire was given to 200 patients in order to address its reliability and validity. The reliability was analysed using Cronbach's alpha coefficient, which measures the internal consistency of the questionnaire, that is, the homogeneity of the survey statements indicating the relationship between them. The construct validity was analysed using an exploratory factor analysis after confirming that it could be carried out by calculating the estimators of sample adequacy: Kaiser-Meyer-Olkin measure (KMO range between 0–1) and Bartlett's test for statistical significance. The statistical analysis was conducted using the statistical software IBM SPSS 27. All the patients surveyed were informed about the study objective and were asked verbally whether they gave their consent to participate in the study.

RESULTS

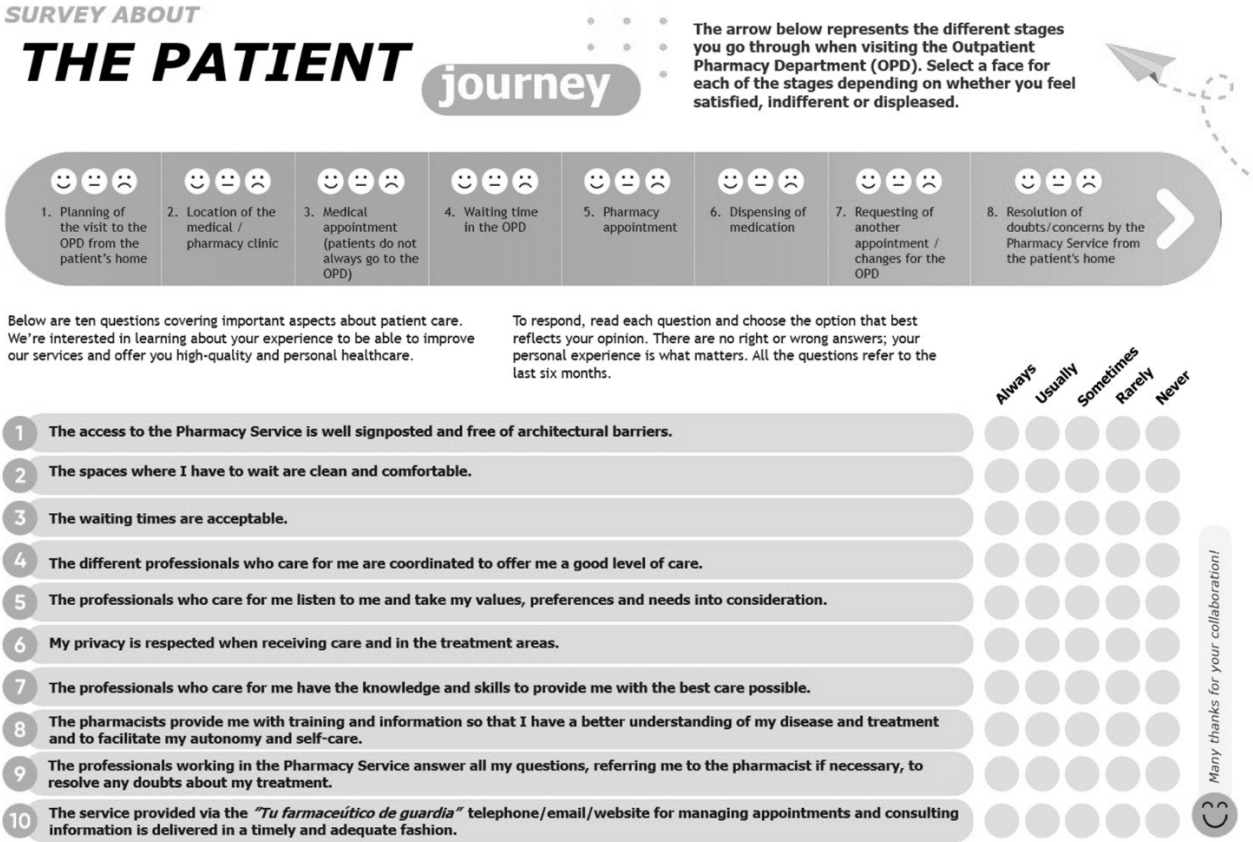
After assessing and grouping the information identified in the literature, both the timeline of the OPD journey and the questionnaire that would ask the patients about their experience during said journey were prepared.

The stages in which the journey was structured were as follows: 1) planning of the visit to the OPD from the patient's home; 2) location of the medical/pharmacy clinic; 3) medical appointment (patients do not always go to the OPD); 4) waiting time in the OPD; 5) pharmacy appointment; 6) dispensing of medication; 7) requesting of another appointment or changes for the OPD; and 8) resolution of doubts/concerns by the Pharmacy Service from the patient's home. These eight stages were structured on a timeline where the patient had to select how they felt (satisfied, indifferent, displeased) during each stage, using an analogical visual scale (Figure 1).

Moreover, the questionnaire obtained after the search, summary, design, and review phases by the group of experts was made up of 10 positive statements that asked the patients about their experiences and expectations before, during and after visiting outpatient pharmacy clinics. The patients had to choose between five options (always, usually, sometimes, rarely, never) for each of the statements. Figure 1 shows the journey timeline and the questionnaire offered to the patients, always after they had given their informed verbal consent.

The validation of the questionnaire began with the *PRE-piloting* phase, which evaluated its feasibility. The number of people who carried out the piloting were: 8 hospital pharmacists, 7 patients, 4 internal resident phar-

Figure 1. Survey about the patient experience of the OPD journey



macists, 4 nurses, 3 pharmacy technicians, 2 administrators and 2 pharmacy students. As regards clarity, with a dichotomous response (0 or 1), all the participants of the survey understood the questions (score of 1), except for one of the respondents, who awarded questions 4 and 5 a score of 0 (Figure 2A). As regards relevance, out of a maximum of 4 points per question, the total score obtained revealed that question 4, *"The different professionals who care for me are coordinated to offer me a good level of care"*, and question 7, *"The professionals who care for me have the knowledge and skills to provide me with the best care possible"*, were less aligned with the survey objective, with both obtaining relevance scores between 1 and 4 (Figure 2B). The participants demonstrated that they understood the questions and the grouped relevance showed high values, with values equal to or greater than 108 out of a maximum of 120 for all questions, which implied a minimum alignment of 90%, and therefore the decision was made to keep the number of statements to 10 items and move on to the next phase.

During the *POST-piloting* phase, the psychometric evaluation of the questionnaire was conducted using statistical analysis. The reliability was determined by measuring the internal consistency of the questionnaire using Cronbach's alpha coefficient, which had a value of 0.810 in the sample of 200 patients. Internal consistency did not increase upon the elimination of one of the statements, a common strategy used to increase the reliability of instruments.

On the other hand, the Kaiser-Meyer-Olkin index (0.857) and Bartlett's test of sphericity ($p<0.01$) were adequate for carrying out the factor analysis and exploring the construct validity. This analysis was performed using the principal component analysis method after varimax rotation with Kaiser normalisation and identified a structure with three independent factors explaining 62.36% of the variance. The first factor (40.93% of the variance) encompassed the actions of the health professionals directed at co-creating with the patient a space for clinical evaluation and shared decision-making to obtain the best health results. The second factor (11.35%) grouped questions related to structural resources, whether in-person (adaptation of spaces and their privacy, waiting times) or telematic (telephone and website for appointments, resolution of doubts). The third factor (10.08%) revolved around the ease/difficulty of the patient to get to the outpatient clinic. Table 1 shows the factorisation in the rotated component matrix of the factor analysis.

DISCUSSION

The designed and validated questionnaire is presented as a feasible, reliable, and valid instrument for measuring the experience reported by patients on their OPD journey.

The questionnaire was shown to be feasible thanks to the reduced number of items, the simplicity and amenity of the format, the clarity of the questions and the relevance in terms of the final objective of the survey, which was none other than to obtain information about the patient experience to be able to improve the service and offer high-quality and personal care.

As regards reliability, numerous authors frequently use 0.7 as the reference value for Cronbach's alpha coefficient. At this level and above, the statements are sufficiently consistent to indicate that the measure is reliable. In the presented case, the instrument presents good measurement reliability and an elevated concordance between the subjects given that the obtained Cronbach's alpha value is above 0.80 and cannot be improved after the exclusion of any items. The coefficient obtained in this study is comparable with those published in the systematic review by Beattie and collaborators of instruments measuring the patient experience of health quality in hospitals[9].

The questionnaire has shown to have a three-factor structure that explains 62.36% of the variance. The factors were named to find a common nexus that encompassed the different variables included in each of them. The first factor, *"Joint pursuit of results"*, refers to the characteristics and content of the interactions between patients and professionals aimed at improving health outcomes. By way of example, the fifth statement highlights how important it is for professionals who care for patients to listen to them and take their values, preferences and needs into consideration; it is about creating together to achieve the desired results. The second factor, *"Comfort of care"*, refers to the spaces and both waiting and care times, including both the new technologies that enable appointment management and the electronic request for information. Finally, the third factor, *"Service accessibility"*, only includes the first statement, "The access to the Pharmacy Service is well signposted and free of architectural barriers". At first the authors considered removing it from the analysis to see

Table 1. Exploratory factor analysis. Rotated component matrix.

	Factor 1	Factor 2	Factor 3
Percentage of explained variance	**40.93%**	**11.35%**	**10.08%**
Q1. Access to the Pharmacy Service			0.841
Q2. Waiting spaces		0.762	
Q3. Waiting times		0.796	
Q4. Coordination of professionals	0.574		
Q5. Values and needs of patients	0.677		
Q6. Privacy in spaces		0.528	
Q7. Knowledge and skills of professionals	0.693		
Q8. Training and information in the clinic	0.741		
Q9. Resolution of doubts in the clinic	0.844		
Q10. Information and appointments from home		0.513	

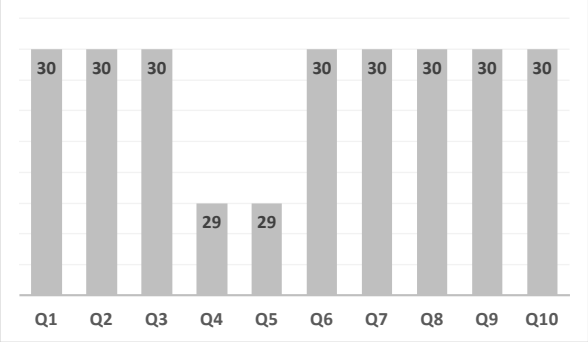
N=200

Extraction method: rotated component analysis.

Rotation method: varimax with Kaiser normalisation.

Figure 2A. Representation of the results obtained about the clarity of the statements

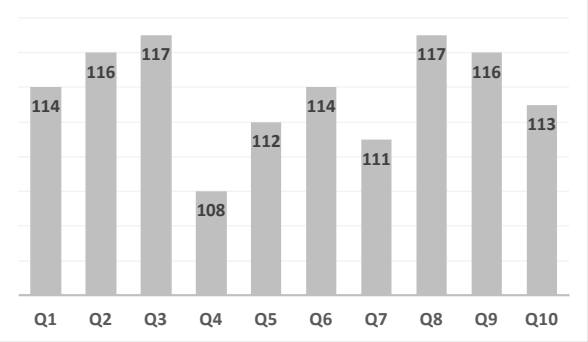
CLARITY (n=30)



Dichotomous scoring (0: unclear; 1: clear).

Figure 2B. Representation of the results obtained about the relevance of the statements

RELEVANCE (N=30)



Score from 1–4 (1: not at all relevant; 2: of little relevance; 3: quite relevant; 4: very relevant).

how it affected the factorisation. The new exploratory factor analysis successfully explained 57.13% of the variance in two unique factors without increasing the saturations of the other statements in each of their factors. Therefore, the decision was made to maintain the first statement given that it was considered important in the patient journey timeline to reflect their experience upon arrival at the hospital, a hostile environment that often generates nervousness, stress and mistrust.

The construct validity results are largely comparable to those obtained for the IEXPAC (Chronic Patient Experience Evaluation Instrument) questionnaire that measures patient experience in chronic disease care and consists of 12 items in Spanish[14]. The authors also derive a structure in three independent factors that converge on the concepts of productive interactions, new relational models, and patient self-management. In the pharmacy context, the published instruments are not as focused on measuring patient experience in their contact with Pharmacy Services, but rather refer to satisfaction surveys about the pharmaceutical care received either in hospital outpatient clinics[18-19] or in community pharmacies[20-21].

It is important to highlight that the sample of patients used to validate the questionnaire was obtained using consecutive sampling instead of analysing a probabilistic technique, since the key objective was to evaluate the psychometric properties of the questionnaire. However, the intention was for the selected patients to be as heterogeneous as possible (different ages, socio-economic level, educational attainment, diseases, medications) to avoid selection bias, so that the information obtained from the selected sample was suitable to fulfil the main study objective.

Among the limitations of this study, it should be mentioned that a panel of nine experts was used to review the questionnaire in two rounds, which could have affected the appropriate selection of the items. This could be improved by using a greater number of experts and by using the Delphi methodology. Another limitation is that, with the design used, it was not possible to assess the test-retest reliability, that is, whether the questionnaire maintains a similar result when used at different times. Furthermore, it was not possible to determine the sensibility of the questionnaires to changes or improvements introduced in the evaluated services (sensibility to change). Finally, given that it was an anonymous and voluntary survey, it was not possible to relate the experience perceived by the patients to the clinical results obtained.

In conclusion, a questionnaire has been designed and validated that measures patient experience in their continuous interactions with the OPD, with more than acceptable internal consistency and reliability. This instrument can determine the quality of the care received by patients and facilitate the adoption of person-centred care approaches by Pharmacy Services. All this points to the patient experience being positively associated with clinical effectiveness and the safety of their pharmacotherapy[22], thus backing its inclusion as one of the central pillars of quality in healthcare. It is therefore necessary to generate results that consolidate this kind of measurement, showing its correlation with the other performance indicators whose relevance and usefulness are widely accepted. Today, the measurement and improvement of the patient experience is no longer optional, but rather a necessity.

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