Hammel IC, https://doi.org/10.37551/S2254-28842024036

Perceived quality of care in the nephrology units of Madrid's public hospitals during the COVID-19 pandemic

Inés Constanze Hammel[1,2], Alberto Villaverde-Núñez[2,3], Beatriz Arriero-López[1,2], Judith García-Hernández[1,2], Cristina Andreu-Vázquez[4], Israel John Thuissard-Vasallo[5], Margarita Medina-Escudero[6], Carmen Díaz Enciso[7], Elena Barragán-Martín[8], Miriam Graciano-Mora[9], Susana Lorenzo-Rosón[2,10], Ana Belén Tirado-García[9], Ana María Sánchez de Castro-Díaz[8], Cristina Pérez-Ramos[2,3], Felipe Llorente-de Miguel[2,10]

[1] HHospital Universitario Infanta Sofía, San Sebastián de los Reyes, Madrid, Spain
[2] Foundation for Biomedical Research and Innovation of Hospital Universitario Infanta Sofía and Hospital Universitario del Henares, Madrid, Spain
[3] Hospital Universitario del Henares, Coslada, Madrid, Spain
[4] Department of Veterinary Medicine, School of Biomedical Sciences, Universidad Europea de Madrid, Spain
[5] Department of Medicine, School of Medicine, Health and Sport, Universidad Europea de Madrid, Spain
[6] Centro de Salud Arroyo de la Vega, Alcobendas, Madrid, Spain
[7] Hospital Universitario Ramón y Cajal, Madrid, Spain
[8] Hospital Universitario del Sureste, Arganda del Rey, Madrid, Spain
[9] Hospital Universitario Infanta Cristina, Parla, Madrid, Spain
[10] Hospital Universitario del Tajo, Aranjuez, Madrid, Spain

Please cite this article in press as:
Hammel IC, Villaverde-Núñez A, Arriero-López B, García-Hernández J, Andreu-Vázquez C, Thuissard-Vasallo IJ, Medina-Escudero M, Díaz Enciso C, Barragán-Martín E, Graciano-Mora M, Lorenzo-Rosón S, Tirado-García AB, Sánchez de Castro-Díaz AM, Pérez-Ramos C, Llorente-de Miguel F. Perceived quality of care in the nephrology units of Madrid's public hospitals during the COVID-19 pandemic. Enferm Nefrol. 2024;27(4):343-53

Corresponding author:
Inés Constanze Hammel
inesconstanze.hammel@salud.madrid.org

Reception: 04-27-24
Acceptance: 11-03-24
Publication: 12-30-24

ABSTRACT

Introduction: The COVID-19 pandemic has posed a global health challenge, highlighting the need to modify guidelines to ensure patient safety.

Objective: To determine the degree of satisfaction during the COVID-19 pandemic of patients who attended Madrid's haemodialysis, peritoneal dialysis, and advanced chronic kidney disease units.

Material and Method: Observational, descriptive, cross-sectional, and multicentre study. Patients over 18 years of age were included, and they had been followed up for at least one year in the same modality: Advanced Chronic Kidney Disease consultation, Peritoneal Dialysis, or Haemodialysis. The validated SERVQHOS questionnaire was used, with the addition of 4 specific questions on care during the pandemic by COVID-19.

Results: A sample of 135 questionnaires was obtained from 5 hospitals in Madrid. Sixty percent (n=81) corresponded to haemodialysis, followed by advanced chronic kidney disease with 27.4% (n=37). Peritoneal dialysis patients represented the lowest percentage, with 12.6 % (n=17). The overall satisfaction rating for peritoneal dialysis patients was 4.8±0.4 points out of 5, for haemodialysis 4.5±0.8 and 4.5±0.6 for advanced chronic kidney disease.

Conclusions: Despite the impact of the pandemic on healthcare systems, the data indicate a high level of satisfaction among patients treated in the Nephrology Units. Quality of care assessment was very high in all three groups. Most of the suggestions for improvement focused on material resources for greater comfort.

Keywords: dialysis; perceived quality; SERVQHOS questionnaire; pandemic.

Hammel IC, https://doi.org/10.37551/S2254-28842024036

RESUMEN

Calidad asistencial percibida en las unidades de nefrología de hospitales públicos madrileños durante la pandemia por COVID-19

Introducción: La pandemia por la COVID-19 ha supuesto un reto sanitario a nivel mundial, evidenciando la necesidad de modificar pautas de actuación, para garantizar la seguridad del paciente.

Objetivo: Conocer el grado de satisfacción, durante la pandemia COVID-19, de los pacientes atendidos en las unidades de hemodiálisis, diálisis peritoneal o consultas de Enfermedad Renal Crónica Avanzada de Madrid.

Material y Método: Estudio observacional, descriptivo, transversal y multicéntrico. Se incluyeron pacientes mayores de 18 años, que llevaran al menos un año en seguimiento en la misma modalidad: consulta de Enfermedad Renal Crónica Avanzada, Diálisis Peritoneal o en Hemodiálisis. Se utilizó el cuestionario validado SERVQHOS, añadiendo 4 preguntas específicas sobre la atención durante la pandemia por la COVID-19.

Resultados: Se obtuvo una muestra de 135 cuestionarios, procedentes de 5 hospitales de Madrid. Un 60% (n=81) corresponden a hemodiálisis, seguido de Enfermedad Renal Crónica Avanzada con un 27,4 % (n=37). Los pacientes de diálisis peritoneal representaron el menor porcentaje con 12,6 % (n=17). El grado de satisfacción global para los pacientes de diálisis peritoneal fue de 4,8±0,4 puntos sobre 5, para hemodiálisis de 4,5±0,8 y de 4,5±0,6 para Enfermedad Renal Crónica Avanzada.

Conclusiones: Pese al impacto que tuvo la pandemia en los sistemas sanitarios, los datos indican una alta satisfacción de los pacientes tratados en las Unidades Nefrológicas, puesto que la valoración de calidad asistencial ha sido muy alta en los tres grupos. La mayoría de las sugerencias en cuanto a mejora se centran en recursos materiales para un mayor confort.

Palabras clave: diálisis; calidad percibida; cuestionario SERVQHOS; pandemia.

INTRODUCTION

The pandemic caused by COVID-19 has represented a major global healthcare challenge. Principles of infection prevention are universal; however, they must be adapted to the specific needs of different populations, such as those served by dialysis units. These nephrology units care for patients with Advanced Chronic Kidney Disease (ACKD) who are undergoing conservative management and are awaiting inclusion in a dialysis programme, as well as patients receiving renal replacement therapy through peritoneal dialysis (PD) or haemodialysis (HD).

Patients with ACKD are required to attend hospital frequently and therefore have regular contact with both healthcare professionals and other patients, which constitutes an additional risk factor[1]. Consequently, this group of patients requires continuous medical monitoring. Furthermore, they represent a particularly vulnerable population with an increased risk of acquiring infectious diseases[2,3] such as COVID-19, owing to advanced age, compromised immune systems and the presence of multiple comorbidities including diabetes mellitus, arterial hypertension and cardiovascular disease[4,5].

This situation has highlighted the need for profound changes within hospitals, including care management[6] and operational protocols to promote patient safety during the pandemic. Some of these changes have been better accepted than others, although all aim to promote patient health and well-being. Such modifications may influence users' perceived quality of care. Therefore, the inclusion and use of specific assessment questionnaires should be encouraged to evaluate this aspect and provide an appropriate response to patients' needs[7]. It must be acknowledged that patients may interpret quality of care differently from healthcare professionals. Patient satisfaction is a key indicator of perceived quality, enabling the identification of areas for improvement[8].

The SERVQHOS scale has been used in several nephrology studies[7-12], although the modified SERVQHOS with a 1–5 Likert scale has gained greater popularity in these services[8-10]. This study describes the COVID-19 pandemic situation from its onset and/or at least from the third to the eighth wave among patients treated in nephrology services.

Therefore, this study was undertaken with the general objective of determining the degree of patient satisfaction with the care received in the different nephrology areas (ACKD, PD and HD) between the 2nd and 8th waves of the COVID-19 pandemic.

The specific endpoint were to analyse potential associated factors and to assess whether inter-service variability existed.

MATERIAL AND METHODS

Study design

We conducted a multicentre, cross-sectional, observational and descriptive study from November 2022 through January 2023.

Population and sample

Five nephrology services from five public secondary-level hospitals in the Autonomous Community of Madrid participated, comprising a total of five ACKD clinics, four PD clinics and five HD units. A sample of 135 completed

questionnaires was obtained through convenience sampling. Patients aged ≥18 years who had received regular follow-up for at least one year (since November 2021) in the same nephrology unit (ACKD, PD or HD) were included, which implies having experienced care in these units at least from the third to the eighth wave of the COVID-19 pandemic (third wave: early December 2020; eighth wave: early October 2022). Questionnaires were distributed between November 2022 and January 2023. Patients enrolled in home HD programmes were excluded, as were those with cognitive impairment, untreated mental illness, or those who were not in suitable psychological or physical condition to complete the questionnaire without external assistance.

Variables and measurement instruments

The modified SERVQHOS questionnaire[8-10]. was used, to which four additional questions related to the COVID-19 pandemic were added. Each item was scored using a Likert scale from 1 ("much worse than expected") to 5 ("much better than expected"), with an additional "don't know/no answer" option. Variables included the following dimensions: sociodemographic data; perception of access and facilities, dialysis staff and unit functioning. Four specific questions assessed care during the COVID-19 pandemic, addressing perceived safety, COVID-19 prevention measures, vaccine information and operational performance during the pandemic. The questionnaire was further complemented with additional ad hoc questions developed by the research team concerning the pandemic and nursing staff **(annex 1)**.

Ethical considerations

Each patient meeting the inclusion criteria and none of the exclusion criteria received the questionnaire and an informed consent form. The purpose of the study and the procedure for completing the questionnaire were explained. Participation was voluntary and carried no benefit or disadvantage for refusal, and anonymity was guaranteed. To ensure confidentiality, patients were asked to deposit the completed documents into two separate collection boxes placed in each unit. All participants signed the informed consent form. The study was approved by the Regional Health Authority in accordance with Royal Decree 191/202 and by all participating institutions. Current legislation was complied with, and ethical standards were upheld in accordance with the Declaration of Helsinki (Fortaleza, Brazil, 2013).

Data analysis

Quantitative variables were expressed as mean ± standard deviation or median and interquartile range, depending on data distribution. Qualitative variables were expressed as absolute (n) and relative (%) frequencies. Sociodemographic differences and patient perceptions across services were analysed using ANOVA or Kruskal–Wallis tests based on normality testing of quantitative variables. Qualitative variables were analysed using the Chi-square test or Fisher's exact test. Results were considered statistically significant when $p < 0.05$. Data processing and analysis were performed using IBM SPSS Statistics v27 (IBM Corp., USA).

RESULTS

A total of 135 questionnaires were analysed. Of these, 60.0% (n=81) were from patients receiving HD, 27.4% (n=37) from patients under outpatient follow-up for ACKD, and the remaining 12.6% (n=17) were from patients on PD. The number of questionnaires collected was similar across hospitals (26–35 questionnaires), with the exception of the smallest hospital, which contributed a smaller sample (n=16).

The mean age of respondents was 67.5±12.9 years, and men represented 71.5% (n=88) of the sample. Regarding educational level, 15.3% reported having no formal education (n=19), 43.5% had completed primary education (n=54), 25.8% had completed secondary education only (n=32), and 14.5% had university-level education (n=18) **(table 1)**.

Table 1. Patient characteristics according to dialysis treatment or follow-up in ACKD clinics.

Variable	HD (n=81)	ACKD (n=37)	PD (n=17)	p value
Age, years	67.1±13.0 (73)	69.8±11.1 (29)	64.9±15.1 (16)	0.722*
Sex, % (n)				**0.642****
Women	30.3% (n23)	34.4% (11)	6.7% (1)	
Men	69.7% (53)	65.6% (21)	93.3% (14)	
Education level, % (n)				0.831**
No formal education	11.8% (9)	19.4% (6)	23.5% (4)	
Primary education	47.4% (36)	41.9% (13)	29.4 % (5)	
Secondary education	26.3% (20)	25.8% (8)	23.5% (4)	
University education	13.2% (10)	12.9% (4)	23.5% (4)	
NS/NA	1.3% (1)	0% (0)	0% (0)	
Marital status, % (n)				0,165**
Married	67,5% (52)	63,6% (21)	88,2% (15)	
Single	14,3 % (11)	9,1% (3)	5,9% (1)	
Separated	9,1% (7)	9,1% (3)	0% (0)	
Widowed	9,1% (7)	18,2% (6)	5,9% (1)	

NS/NA: Not stated / no answer; *ANOVA; **Chi-square test.

With respect to the questions concerning perceived trust and safety, PD patients reported the highest levels, with a mean score of 4.9±0.3 out of 5. HD and ACKD patients also reported high scores, with means of 4.7±0.5 and 4.6±0.9,

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respectively. No statistically significant differences were observed (p=0.387) **(figure 1A)**.

PD and HD patients rated the professionalism and professional competence of health care staff slightly higher during the pandemic, with mean scores of 4.8±0.5 and 4.7±0.6, respectively, while ACKD patients reported a mean of 4.5±0.9. No significant inter-group differences were found (p=0.282) **(figure 1B)**.

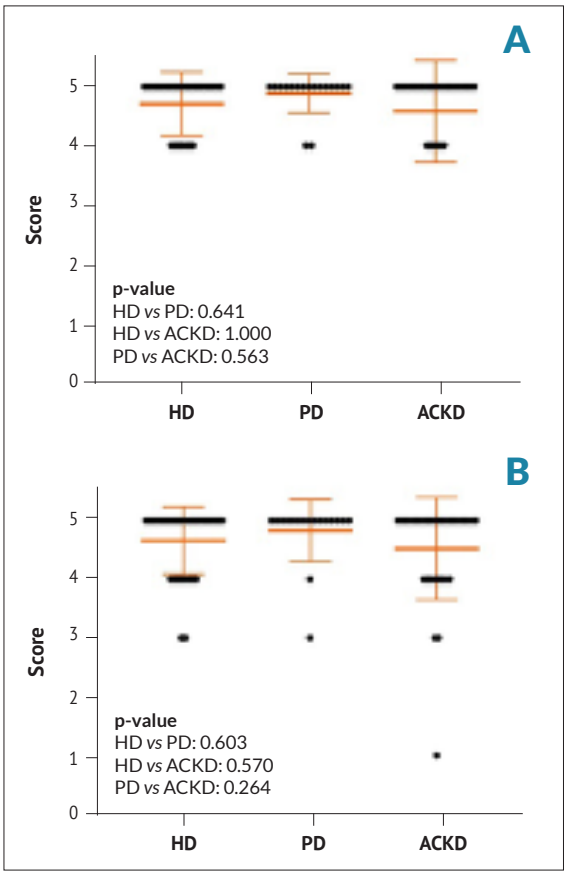

Figure 1 A and B. Patients' perception of trust and safety (A) and assessment of professionalism and professional competence (B) in ACKD, PD and HD.

Perceived quality of information regarding SARS-CoV-2 infection prevention was high, with mean scores of 4.6±0.7 in HD, 4.6±0.6 in PD and 4.4±1.1 in ACKD, with no statistically significant differences (p=0.909) **(figure 2A)**.

Regarding information received about COVID-19 vaccination, HD patients reported a mean score of 4.4±0.9, PD patients 4.4±0.7 and ACKD patients 4.3±0.9 (p=0.756) **(figure 2B)**.

Concerning patients' perception of nursing staff interest, very high scores were obtained in all three units: PD 4.8±0.4, HD 4.7±0.6 and ACKD 4.6±0.9. No statistically significant differences were observed (p=0.592) **(figure 3A)**.

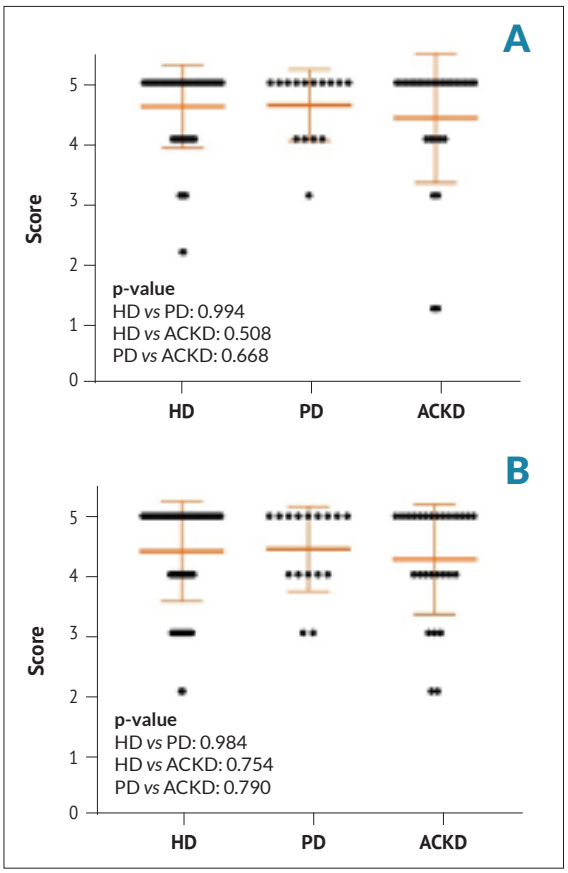

Figure 2 A and B. Patients' perception of the information received regarding infection prevention (A) and vaccination (B) in ACKD, PD and HD.

In relation to the overall functioning of nephrology units during the pandemic, PD patients reported the highest mean score (4.7±0.6), followed by HD (4.6±0.7) and ACKD (4.4±0.9), with no significant differences between groups (p=0.189) **(figure 3B)**.

Regarding overall satisfaction with healthcare received, PD patients reported the highest satisfaction (mean 4.81±0.4 out of 5). Consequently, 100% of PD patients stated they would choose the same dialysis service again (n=16), followed by 97.5% of HD patients (n=78) and 90.3% of ACKD patients (n=28). Similarly high percentages were observed regarding willingness to recommend their unit: 100% of PD patients (n=17), 96.7% of ACKD patients (n=29) and 95% of HD patients (n=76).

Patients' perceptions of areas requiring improvement were collected through open-ended responses **(table 2)**. Most suggestions were provided by HD patients (n=81), focusing primarily on comfort and rest during treatment sessions.

As shown in **figure 4**, patients assigned high scores to the measures implemented during the pandemic.

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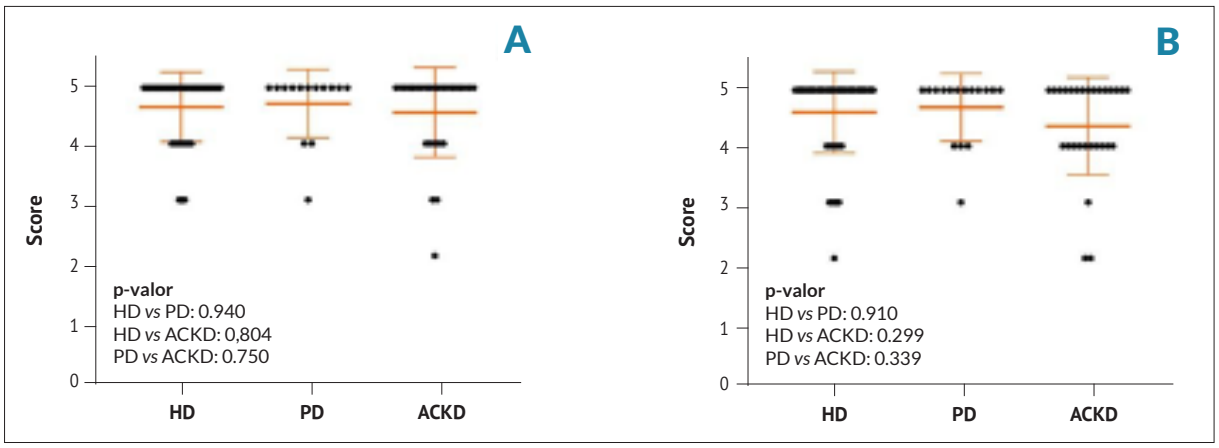

Figure 3 A and B. Patients' perception of staff interest (A) and the functioning of the three nephrology units (B) in ACKD, PD and HD.

DISCUSSION

Patient satisfaction among individuals receiving HD, PD and outpatient ACKD follow-up during the COVID-19 pandemic was high, despite the difficulties imposed by the health crisis. The sample size of this study is comparable to that of previous studies using the SERVQHOS scale[12-13]. The mean age of participating patients ranged from 64.9 to 69.8 years, consistent with other published reports[12-13]. A predominance of male patients among the dialysis population was also observed, in line with existing literature[13-15]. Overall satisfaction across studies remained high, with a mean score of 4.56 out of 5. Patient participation was similar across the 5 centres, taking into account unit size. One hospital lacked a PD unit and served a smaller catchment area, which likely explains its lower participation. Consequently, 16–35 questionnaires were collected per centre, consistent with their respective patient populations.

All PD patients responded to the educational level question; however, non-response occurred in 7.4% of HD and 18.9% of ACKD patients. Previous studies examining the relationship between sociodemographic characteristics and satisfaction have suggested that higher educational levels may be

Table 2. Areas for improvement identified by patients.

Unit	Area	Specification	N
HD	Environment / facilities	• RTemperature regulation	(6)
		• Beds and chairs	(11)
		• Pillows, blankets and linen	(3)
		• Excess or insufficient lighting	(2)
		• Noise pollution during treatment	(1)
	Medical equipment / technology	• Renewal and maintenance of machines	(5)
		• Technology improvements	(1)
		• Improved Wi-Fi, mobile/Tablet chargers	(1)
		• Excessive session duration	(1)
		• Home dialysis	(1)
	Scheduling	• Earlier start times, punctuality and flexibility	(6)
	Human resources	• Increased healthcare staffing	(4)
		• Job stability	(6)
	Transport	• Organisation-provided ambulances	(6)
		• Improved control of parking areas near dialysis units	(1)
	Other	• Delays in inter-consultation appointments	(1)
DP	Human and material resources	• More resources and healthcare professionals	(1)
	Scheduling	• Waiting times	(1)
ERCA	Human resources	• Improved professional conduct	(1)
		• Avoid frequent rotation of nursing staff	(1)

Note: Comments stating "Everything is fine" were not considered as improvement suggestions.

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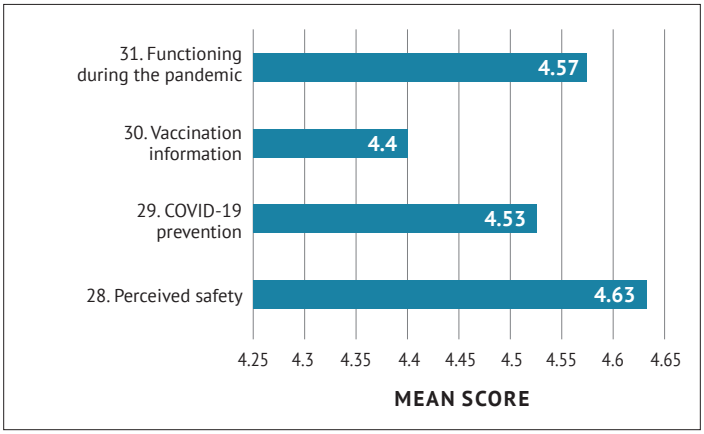

Figure 4. Assessment of satisfaction with the specific questions related to the COVID-19 pandemic.

associated with lower satisfaction, possibly due to increased expectations[7]. This finding was not confirmed in the present study, as PD patients had the highest educational levels and also reported the highest satisfaction, contrary to earlier reports[11-12]. Furthermore, 100% of PD patients stated they would repeat treatment in the same unit, consistent with previous studies demonstrating high satisfaction with PD care during the pandemic[16]. Other authors have concluded that the pandemic did not significantly influence satisfaction among most dialysis patients[17]. It has been hypothesised that dialysis patients may demonstrate greater resilience to pandemic-related stress due to their long-standing exposure to physical and emotional burden, although COVID-19 added additional stressors[18-19]. Our initial assumption that the pandemic would negatively affect perceived care quality was not supported, in agreement with previous PD-focused studies[3]. Perceived safety during the pandemic did not differ significantly between modalities, despite HD patients' increased exposure due to frequent hospital attendance. These findings align with previous reports in which patients expressed agreement with necessary organisational changes[20]. With regard to the final additional question developed by the research team and incorporated into the validated SERVQHOS questionnaire concerning the overall functioning of services during the pandemic, no comparisons with other studies can be made due to the absence of similar data in the literature.

PD patients were scheduled punctually for necessary laboratory testing, with follow-up consultations conducted by telephone, while ACKD patients were also frequently offered telephone follow-up[3]. Regarding the open-ended questions, in which patients primarily described areas for improvement, HD patients provided the highest number of responses. Most of their suggestions focused on comfort during HD sessions and on dissatisfaction resulting from the lack[21] or inadequacy of material resources, such as the need to improve beds and chairs, as well as the availability of pillows and blankets. Overall, patient satisfaction contributes to the promotion of continuous quality improvement and may even represent the most reliable indicator of healthcare quality[22].

LIMITATIONS AND BIAS

This study assessed perceived quality of care within a specific population and setting in Madrid; therefore, results cannot be generalised to other populations or contexts. Inclusion of patients with at least one year of experience in the same treatment modality may have influenced perceptions. Although similar measures were assumed across centres, implementation was not identical between units or institutions. Strict inclusion and exclusion criteria resulted in a smaller sample than anticipated. Nevertheless, the multicentre design and representative sociodemographic characteristics strengthen the validity of the findings[12-15].

Despite the significant impact of the pandemic on healthcare systems, patient satisfaction across nephrology units in Madrid remained high. Most suggested improvements focused on material resources to enhance comfort during treatment. Given the importance of patient satisfaction in influencing perceived health—particularly in chronic disease contexts—ongoing efforts to incorporate patient feedback are essential to promote wellbeing and care quality.

Acknowledgements

We would like to thank all participating patients from the 5 hospitals. We also acknowledge the collaboration of staff from *Hospital Universitario Infanta Sofía*, particularly Mónica García Garrido and Beatriz Sánchez Salan; Vicente Paraíso Cuevas and José Luis Merino Rivas from *Hospital Universitario del Henares*; Raquel Talaya Moya and Yolanda Fernández Jimeno from Hospital Universitario del Tajo; and the dialysis unit staff of *Hospital Universitario Infanta Cristina*. Finally, as lead author, I wish to extend special thanks to the early-career research nurses who participated in this multicentre study. Thank you all very much.

Conflicts of interest

None declared.

Funding

None declared.

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ANEXX 1. Questionnaire Used

Modified SERVQHOS Survey for Patients of the Dialysis Service

Patient satisfaction survey on the perceived quality of healthcare in the Nephrology Service of Hospital Universitario Infanta Sofía during the pandemic.

Dear Patient,

We are interested in learning your opinion about the perceived quality of healthcare provided by the dialysis service, as the COVID-19 pandemic has influenced the organisation of the service.

Your feedback will allow us to continue improving the quality of both medical and nursing care.

Your participation is entirely voluntary and completely anonymous. All information will be handled confidentially. Should you decide to participate, we sincerely thank you for your collaboration.

Please indicate, based on your experience, whether the quality of healthcare provided by the dialysis service has been better or worse than you expected. For example, if you believe it has been MUCH WORSE than expected, mark an X in box 1. If it has been MUCH BETTER than expected, mark an X in box 5, and so on. If you do not know or do not wish to answer, please select NS/NA.

The quality of health care has been:

Score	Response
1	Much worse than expected
2	Worse than expected
3	As expected
4	Better than expected
5	Much better than expected
NA	Not stated/Not answered

Hammel IC, https://doi.org/10.37551/S2254-28842024036

Item	Question	1	2	3	4	5	NS/NA
1	Ease of access to the hospital	☐	☐	☐	☐	☐	☐
2	Signage and directions to reach the dialysis service	☐	☐	☐	☐	☐	☐
3	Condition of the consultation rooms, cubicles and/or dialysis room (appearance)	☐	☐	☐	☐	☐	☐
4	Comfort of the facilities	☐	☐	☐	☐	☐	☐
5	Medical equipment technology for diagnosis and treatment	☐	☐	☐	☐	☐	☐
	Dialysis unit staff						
6	Appearance, cleanliness and uniform of staff	☐	☐	☐	☐	☐	☐
7	Staff commitment to fulfilling agreed care	☐	☐	☐	☐	☐	☐
8	Staff willingness to help when needed	☐	☐	☐	☐	☐	☐
9	Trust and sense of safety conveyed by staff	☐	☐	☐	☐	☐	☐
10	Courtesy and friendliness of staff	☐	☐	☐	☐	☐	☐
11	Staff professional competence and training	☐	☐	☐	☐	☐	☐
12	Personalised care provided to patients	☐	☐	☐	☐	☐	☐
13	Staff ability to understand patients' needs	☐	☐	☐	☐	☐	☐
14	Information provided by physicians to patients	☐	☐	☐	☐	☐	☐
15	Information provided by physicians to family members	☐	☐	☐	☐	☐	☐
16	Interest shown by nursing staff towards patients	☐	☐	☐	☐	☐	☐
17	Nursing information related to personal hygiene (peritoneal catheter / arteriovenous fistula / graft)	☐	☐	☐	☐	☐	☐
18	Nursing information related to diet	☐	☐	☐	☐	☐	☐
19	Nursing information related to daily activities	☐	☐	☐	☐	☐	☐

Item	Question	Yes (1)	No (2)	NS/NA (9)
20	Do you know the name of the doctor who usually attended you?	☐	☐	☐
21	Do you know the name of the nurse who usually attended you?	☐	☐	☐
22	Do you know the name of the nursing assistant who usually attended you?	☐	☐	☐

Hammel IC, https://doi.org/10.37551/S2254-28842024036

Waiting time in the dialysis unit

Item	Question	1	2	3	4	5	NS/NA
23	Waiting time to be seen by the doctor	☐	☐	☐	☐	☐	☐
24	Waiting time to be seen by the nurse	☐	☐	☐	☐	☐	☐
25	Waiting time to be seen by the nursing assistant	☐	☐	☐	☐	☐	☐
26	Speed with which requests or needs are addressed	☐	☐	☐	☐	☐	☐
27	Punctuality of consultations and/or dialysis sessions	☐	☐	☐	☐	☐	☐

Functioning of the dialysis unit during the pandemic

Item	Question	1	2	3	4	5	NS/NA
28	Sense of safety in the dialysis unit during the pandemic	☐	☐	☐	☐	☐	☐
29	Information received on how to prevent COVID-19 infection	☐	☐	☐	☐	☐	☐
30	Information received about the COVID-19 vaccine	☐	☐	☐	☐	☐	☐
31	Overall functioning of the service during the pandemic	☐	☐	☐	☐	☐	☐

Item	Question	Yes (1)	No (2)	NS/NA (9)
32	Have any tests or procedures been performed at the hospital without your consent?	☐	☐	☐

Item	Question	Response options	
33	In your opinion, the length of your hospital stay has been:	Less than necessary	(1)
		The necessary time	(2)
		More than necessary	(3)
		NA	(9)

Overall satisfaction and recommendation

Please circle or tick the option that best reflects your opinion

34 Please indicate your overall level of satisfaction with the healthcare you have received

Not satisfied at all	(1)
Somewhat satisfied	(2)
Neither satisfied nor dissatisfied	(3)
Satisfied	(9)
NA	(9)

35 If you had the opportunity to choose, would you select the same dialysis service again?

Yes	(1)
Unsure	(2)
No	(3)
NA	(9)

Hammel IC, https://doi.org/10.37551/S2254-28842024036

36 Would you recommend this service to other people?

Yes	(1)
Unsure	(2)
No	(3)
NS/NA	(9)

Identification or classification data
Por favor, rellene o marque

37 Age:.....Years

38 Sex
Man ..... (1)
Woman .....(2)

39 Studies:

Without studies..... (1)

Primary ..... (2)

Bachelor ..... (3)

University ..... (4)

NA ..... (9)

40 Marital status

Married..... (1)

Single ..... (2)

Separate ..... (3)

Widower ..... (4)

NA ..... (9)

41 Occupation

Retired..... (1)

Unemployed ..... (2)

Working ..... (3)

Housewife ..... (4)

Student ..... (5)

NA ..... (9)

42 indicate the status of your treatment

Advanced Chronic Kidney Disease..... (1)

Peritoneal Dialysis ..... (2)

Haemodialysis ..... (3)

NA ..... (9)

43 In your opinion, what could be improved in the dialysis unit? .....

.....

THANK YOU VERY MUCH FOR YOUR COLLABORATION