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Impact of constipation on the quality of life of people on haemodialysis. Multicentre study

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ABSTRACT

Introduction: In people on haemodialysis, constipation is one of the most common gastrointestinal complaints, linked to factors such as comorbidity, pharmacological treatment, advanced age and water-dietary restrictions, and may affect quality of life.

Objetive: To determine the impact of constipation on the quality of life of people on haemodialysis, to analyse the prevalence of objective and subjective constipation and possible related factors.

Material and Method: This multicentre cross-sectional observational study was carried out in the haemodialysis units of three hospitals. Rome IV criteria were applied to assess objective constipation, an *ad hoc* questionnaire was used to determine subjective constipation, and the CVE-20 questionnaire was used to evaluate quality of life.

Results: In the sample of 131 patients, 45.8% presented objective constipation and 71.7% subjective constipation. The constipated patients were 65% male, with mean age 69.63±15.63 years and 52.11±46.91 months on haemodialysis; 91.7% were hypertensive, 56.7% diabetic, 28.3% had digestive pathology, and 11.7% hypothyroidism. Mean diuresis 358.33±574.61 ml *vs* water intake 1,253.33±819.92ml. Pharmacological treatment: 20% were taking opioids, 65% phosphorus chelators, 45% potassium chelators, 41.7% had prescribed laxatives, and 43.3% intravenous iron. Quality of life was lower in constipated patients (58.55±16.25 *vs* 64.63±15.56 points, p=0.026), and there were differences between hospitals in the dimensions affected.

Conclusions: Objective and subjective constipation is highly prevalent in people on haemodialysis and negatively impacts their quality of life. To improve this, health education on the prevention and management of constipation is proposed.

Keywords: quality of life; chronic kidney disease; release; multicentre study; haemodialysis.

RESUMEN

Impacto del estreñimiento en la calidad de vida de las personas en hemodiálisis. Estudio multicéntrico

Introducción: En personas en hemodiálisis, el estreñimiento supone una de las afecciones gastrointestinales más frecuentes, vinculada a factores como la comorbilidad, tratamiento farmacológico, edad avanzada y restricciones hídricas-dietéticas; pudiendo afectar la calidad de vida.

Objetivo: Determinar el impacto del estreñimiento en la calidad de vida de las personas en hemodiálisis, analizar la prevalencia de estreñimiento objetivo y subjetivo y los posibles factores relacionados.

Material y Método: Estudio observacional transversal multicéntrico desarrollado en la Unidad de hemodiálisis de tres

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hospitales. Se aplicaron Criterios Roma IV para evaluar el estreñimiento objetivo; para el subjetivo se utilizó un cuestionario diseñado *ad hoc*, y el cuestionario CVE-20 para evaluar la calidad de vida.

Resultados: Muestra de 131 pacientes; un 45,8% presentó estreñimiento objetivo y un 71,7% subjetivo. Los pacientes con estreñimiento, un 65% eran hombres, edad media de 69,63±15,63 años y 52,11±46,91 meses en hemodiálisis; un 91,7% eran hipertensos, 56,7% diabéticos, 28,3% presentaron patología digestiva y 11,7% hipotiroidismo. Diuresis media 358,33±574,61 ml vs ingesta hídrica 1.253,33±819,92 ml. Tratamiento farmacológico: 20% tomaba opioides, 65% quelantes del fósforo, 45% del potasio, 41,7% tenían laxantes pautados y 43,3% hierro endovenoso. La calidad de vida fue inferior en los pacientes estreñidos (58,55±16,25 vs 64,63±15,56 puntos, p=0,026), existiendo diferencias en la afectación de las dimensiones entre hospitales.

Conclusiones: En personas en hemodiálisis, existe una alta prevalencia de estreñimiento objetivo y subjetivo con un impacto negativo en su calidad de vida. Se propone intervenir con educación sanitaria sobre la prevención y manejo del estreñimiento, para mejorar su calidad de vida.

Palabras clave: calidad de vida; enfermedad renal crónica; estreñimiento; estudio multicéntrico; hemodiálisis.

INTRODUCTION

The World Gastroenterology Organization (WGO) defines functional constipation (FC) as a GI disorder characterised by persistent difficulty in evacuating stools, a sensation of incomplete defecation and/or infrequent bowel movements in the absence of underlying pathology, and comprising both objective and subjective components that depend on the patient's perception[1]. Likewise, the North American Nursing Association (NANDA) recognises constipation as a nursing diagnosis under code [00011][2].

Worldwide, the prevalence of constipation in the general population is estimated at 14–16%[3]; in Europe it reaches 17.1%[4], and in Spain figures range between 12–20%, making it the second highest in Europe for objective constipation according to the Spanish Foundation of the Digestive System (FEAD)[5]. In addition, the prevalence of subjective constipation in the Spanish general population is estimated at 18.4%[6].

Among individuals with chronic kidney disease (CKD), constipation has been described as one of the most frequent gastrointestinal disorders. In patients receiving renal replacement therapy (RRT) such as peritoneal dialysis (PD) and haemodialysis (HD), reported prevalence varies widely, ranging from 1.6–71.7% in HD and 14.2–90.3% in PD[7,8]. More recent studies indicate that constipation is more prevalent in patients on HD[9-10]. being 3.1 times more frequent than in PD[11]. This GI disorder is associated with factors such as high comorbidity, pharmacological treatment (iron supplements, phosphate and potassium binders), advanced age, sedentary lifestyle, and the fluid and dietary restrictions imposed by CKD[7,8].

Currently, several studies conducted in HD patients have shown that constipation has a profound impact on both the individual and their environment, significantly compromising quality of life (QoL)[4,7,8,12,13], and being associated with increased morbidity, mortality and complications[4,7,8], leading to higher healthcare and socioeconomic resource utilisation[7,12].

QoL, according to various authors including Mearin et al. (2013)[14]. is defined as the individual's perception of the effects of disease and/or treatment on different areas of life, particularly the impact on physical, emotional and social well-being. Despite the substantial impact of constipation on this population, it remains insufficiently investigated and often underestimated[4,7,9,15]. For this reason, a single-centre cross-sectional observational study was conducted in the HD unit of *Hospital Universitario de la Princesa* (HLPR) during the first quarter of 2023, revealing a high prevalence of both functional constipation (42%) and subjective constipation (44.7%), together with a marked reduction in QoL; this led to the proposal of a multicentre study to allow extrapolation of the findings[16].

Therefore, the primary objective of the present study was to determine the impact of FC on QoL in HD patients. The specific objectives were to establish the prevalence of objective and subjective constipation and to identify associated factors.

MATERIALS AND METHODS

Study Design and Setting

We conducted a multicentre descriptive cross-sectional study within the first quarter of 2024 in three HD units: two tertiary-care hospitals, *Hospital Universitario de la Princesa* (HLPR) and *Hospital Universitario de la Paz* (HULP) in the Community of Madrid (Madrid, Spain), and one secondary-care hospital, *Hospital Universitario de Guadalajara* (HUGU) in Castilla-La Mancha (Spain).

Population and Sample

The study population comprised all patients receiving active HD treatment in the 3 hospitals. A non-probabilistic convenience sampling method was used. Inclusion criteria were: ≥3 months on HD, legal adult age, and provision of written informed consent. Exclusion criteria included neuropsychological impairment, language barriers, ostomy, and loss to follow-up (death, transplantation or transfer to another centre).

Study Variables

Primary variables were presence of FC, subjective constipation and QoL. Additional variables included age, sex, duration of HD, average urine output and fluid intake, comorbidities (diabetes mellitus [DM], hypertension [HTN], gastrointestinal

disease, hypothyroidism, Charlson Comorbidity Index), pharmacological treatment (intravenous iron during dialysis, phosphate and potassium binders, laxatives, opioid use), and physical activity level.

Measurement Instruments and Data Collection

- **Rome IV Diagnostic Criteria (2016)[17] for the determination of functional constipation (FC) **(figure 1)**.

Diagnostic Criteria for Functional Constipation

1. The diagnosis requires the presence of two or more of the following criteria:
- **a.** Excessive straining during defecation in at least one out of four bowel movements.
- **b.** Lumpy or hard stools (Bristol Stool Scale 1–2) in at least one out of four bowel movements.
- **c.** Sensation of incomplete evacuation in at least one out of four bowel movements.
- **d.** Sensation of anorectal obstruction or blockage in at least one out of four bowel movements.
- **e.** Manual manoeuvres to facilitate defecation in at least one out of four bowel movements.
- **f.** <3 spontaneous bowel movements per week.

2. Loose stools are rarely present without the use of laxatives.

3. Criteria for irritable bowel syndrome must not be met.

Figure 1. Rome IV Diagnostic Criteria (2016).

Source: Adapted from Lacy BE et al. Bowel disorders. Gastroenterology. 2016;150(6):1393–1407.

- Ad hoc questionnaire designed to assess subjective constipation, which included the definition of functional constipation (FC), after which participants were asked whether they considered that this definition corresponded to their current situation. As this instrument was developed by the research team and has not been formally validated, it was constructed following an exhaustive review of the existing literature.
- CVE-20 questionnaire to specifically evaluate constipation-related quality of life, validated in Spanish by Perona et al. (2008)[18], with a Cronbach's alpha reliability of 0.87 and convergent validity demonstrated by a Pearson correlation coefficient (r=−0.437, p=0.038). This questionnaire consists of a 20-item self-administered Likert-type scale assessing four dimensions (emotional, general physical, rectal physical and social), with a score range of 0–20 points and no established cut-off value; higher scores indicate better quality of life (see **figure 2**).
- For the collection of clinical and sociodemographic data, the electronic medical record was consulted (HCIS at HLPR and HULP, and Mambrino at HUGU), as well as a Nephrology care management software system (Nefrosoft at HLPR and Nefrolink at HULP and HUGU).

Statistical procedure

The results obtained were processed using Microsoft Excel 2019 and SPSS version 28.0 and are presented as absolute values and percentages for categorical variables, and as means ± standard deviation for quantitative variables with normal distribution, using tables for their representation. Comparisons between quantitative variables with normal distribution and similar variances between the groups compared were performed using the Student's t-test, with statistical significance established at p <0.05 and a 95% confidence interval. The Chi-square test was used for the comparison of percentages.

Ethical and legal aspects

This study was conducted in full compliance with the ethical principles set out in Law 14/2007 of 3 July on Biomedical Research and the Declaration of Helsinki (1964), and was approved by the Medicines Research Ethics Committee (CEIm) of HLPR (reference number 5446) on 22 January 2024, with the agreement of the remaining participating hospitals. All patients were informed of the aim of the study and signed the informed consent form, which, together with the completed questionnaires, was scanned and securely stored in an encrypted folder (identified by an assigned number) by the principal investigator at HLPR, in accordance with the safeguards established by Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 (General Data Protection Regulation, GDPR) concerning the protection of natural persons with regard to the processing of personal data and the free movement of such data. In addition, strict confidentiality of participants' data was maintained in accordance with Organic Law 3/2018 of 5 December on the Protection of Personal Data and the Guarantee of Digital Rights, as amended by Law 11/2023 of 8 May.

RESULTS

A total of 182 individuals were receiving active haemodialysis (HD) treatment across the three hospitals; after applying the previously defined criteria, 51 patients were excluded (see **figure 3**), resulting in a final sample of 131 patients, with a mean age of 69.64 ± 14.22 years, of whom 59.5% (n=78) were men.

The prevalence of functional constipation (FC) was 45.8% (n=60), of whom 65% were men (n=39), with a mean age of 69.63±15.63 years and a mean duration on HD of 52.11±46.91 months. FC prevalence by hospital was 39.6% (n=21) at HLPR, 47.2% (n=17) at HULP, and 52.4% (n=22) at HUGU.

Regarding comorbidity among patients with FC, 91.7% (n=55) had hypertension, 56.7% (n=34) diabetes mellitus, 28.3% (n=17) gastrointestinal disease, and 11.7% (n=7) hypothyroidism, with a mean Charlson Comorbidity Index of 6.83±2.70 points. For other analysed variables in this group, mean diuresis was 358.33±574.61 mL, mean fluid intake 1,253.38±19.92 mL, and 45% (n=27) considered themselves sedentary. With regard to

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Final Constipation-Related Quality of Life Questionnaire (CVE-20)

	Always (0)	Almost always (1)	Sometimes (2)	Rarely (3)	Never (4)
Emotional dimension					
I am worried that nobody will be able to solve my problem.	☐	☐	☐	☐	☐
I am worried about having or developing an illness.	☐	☐	☐	☐	☐
I am limited in eating the foods I like	☐	☐	☐	☐	☐
I feel misunderstood; people think I am exaggerating.	☐	☐	☐	☐	☐
I am obsessed with going to the toilet every day to open my bowels.	☐	☐	☐	☐	☐
I have difficulty enjoying my leisure activities.	☐	☐	☐	☐	☐
General physical dimension					
The treatments I take cause me discomfort.	☐	☐	☐	☐	☐
I notice that my constipation worsens when I go out.	☐	☐	☐	☐	☐
I spend a long time in the bathroom trying to open my bowels.	☐	☐	☐	☐	☐
I feel uncomfortable because of abdominal bloating.	☐	☐	☐	☐	☐
I am bothered by headaches.	☐	☐	☐	☐	☐
I feel that stress worsens my constipation.	☐	☐	☐	☐	☐
I feel unclean; I never finish emptying my bowels.	☐	☐	☐	☐	☐
Rectal physical dimension					
I am worried about tearing because of the effort I have to make.	☐	☐	☐	☐	☐
I am bothered by anal pain during defecation.	☐	☐	☐	☐	☐
I am worried about developing haemorrhoids.	☐	☐	☐	☐	☐
I have difficulty falling asleep and sleeping because of discomfort.	☐	☐	☐	☐	☐
Social dimension					
I am worried about having foul-smelling and noisy gas.	☐	☐	☐	☐	☐
I am worried about having to depend on laxatives.	☐	☐	☐	☐	☐
I feel embarrassed when others use the toilet after me.	☐	☐	☐	☐	☐

Figure 2. Quality of Life Questionnaire (CVE-20).

Source: Med Clin (Barc). 2008;131(10):371–7.

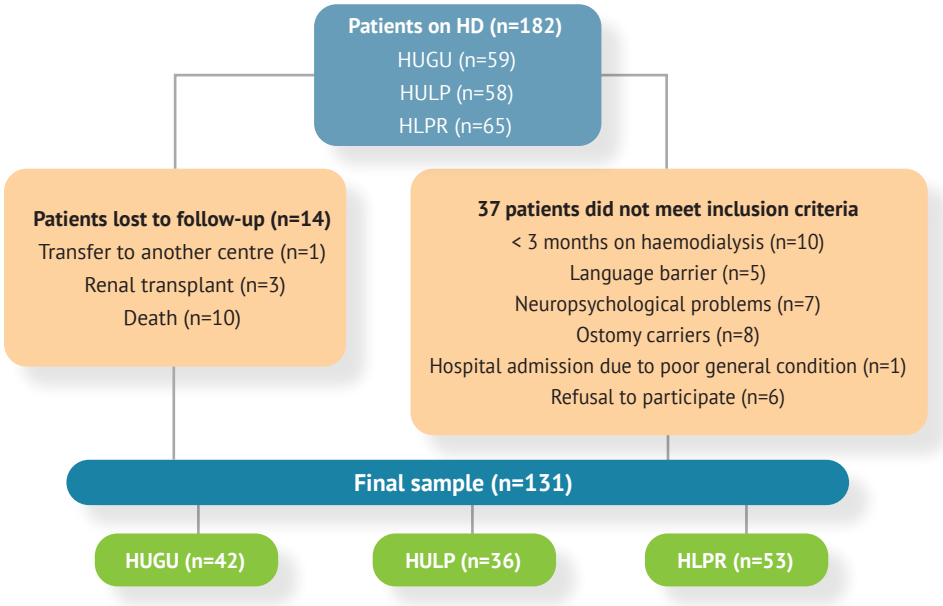

Figure 3. Recruitment and selection of the study sample.

HUGU: Hospital Universitario de Guadalajara; **HLPR:** Hospital Universitario de la Princesa; **HULP:** Hospital Universitario de la Paz.

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Tabla 1. Comparison of sociodemographic and clinical variables according to the presence of objective constipation (Rome IV criteria, 2016).

	HLRP n=53 (40,5%)		P	HULP n=36 (27,48%)		P	HUGU n=42 (32,06%)		P	TOTAL n=131 (100%)		P
	Constipated (n=21)	Not constipated (n=32)		Not constipated (n=17)	Not constipated (n=19)		Constipated (n=22)	Not constipated (n=20)		Constipated (n=60)	Not constipated (n=71)	
Age (years)*	71.67±15.69	71.97±12.09	0.937^	63.76±17.43	66.32±14.65	0.160^	72.22±13.49	68.8±12.77	0.404^	69.63±15.64	69.65±13.01	0.995^
Sex : Male Female	n= 13 (61,9%) n= 8 (38.1%)	n= 18 (56.3%) n= 14 (43.8%)	0.683^^	n= 10 (58.6%) n= 7 (47.37%)	n= 10 (52.6%) n= 9 (47.4%)	0.709^^	n= 16 (72.7%) n= 6 (27.3%)	n= 11 (55%) n= 9 (45%)	0.231^^	n= 39 (65%) n= 21 (35%)	n= 39 (54.9%) n= 32 (45.1%)	0.242^^
Digestive disease, n (%)	n= 5 (23.8%)	n= 11 (34.4%)	0.412^^	n= 6 (35.3%)	n= 6 (31.6%)	0,813^^	n= 6 (27.3%)	n= 9 (45%)	0.231^^	n= 17 (28.3%)	n= 26 (60.5%)	0.314^^
Hypertension, n (%)	n= 21 (100%)	n= 25 (43.8%)	0.021^^	n= 15 (88.2%)	n= 15 (78.9%)	0,709^^	n= 19 (86.4%)	n= 16 (80%)	0.580^^	n=55 (91.7%)	n= 56 (50.5%)	0.043^^
Diabetes, n (%)	n= 13 (61.9%)	n= 12 (37.5%)	0.082^^	n= 6 (35.3%)	n= 5 (26.3%)	0,559^^	n= 15 (68.2%)	n= 7 (35%)	0.032^^	n= 34 (56.7%)	n= 24 (33.8%)	0.009^^
Hypothyroidism, n (%)	n= 3 (14.3%)	n= 5 (15.6%)	0.894^^	n= 1 (5.9%)	n= 2 (10.5%)	0,615^^	n= 3 (13.6%)	n= 3 (15%)	0.900^^	n= 7 (11.7%)	n= 10 (14.1%)	0.682^^
Charlson Index (points)*	8.23±2,46	8.21±2,84	0.980^	4.76±2,46	5.16±2,42	0.635^	7,10±2.14	6.70±2.01	0.545^	6.83±2.70	6.97±2.80	0.775^^
Fluid intake (ml)*	959.52±431.75	1000.94±497.05	0.756^	2205.882±825.73	2142.10±813.30	0.444^	797.72±391,723	972.5±475.58	0.199^	1253.33±819.92	1298.31±777.75	0.748^
Mean diuresis (ml)*	390.48±412.20	608.12±624.91	0.166^	452.94±836.01	652.63±818.78	0.817^	254.54±462.37	435±763.84	0.355^	358.33±574.61	715.14±84.87	0.066^
Sedentary lifestyle, n (%)	n= 6 (28.6%)	n= 11 (34.4%)	0.658^^	n= 7 (41.2%)	n= 6 (31.6%)	0.658^^	n= 14 (63.6%)	n= 9 (45%)	0.226^^	n= 27 (45%)	n= 26 (36.6%)	0.330^^
Time on haemodialysis (months)*	37.46±28.02	41.84±29.23	0.596^	51.41±49.77	34.68±28.22	0.217^	66.63±55.31	53.85±30.58	0.336^	52.12±46.92	43.31±29.83	0.196^
Phosphate binders, , n (%)	n= 13 (61.9%)	n= 13 (40.6%)	0.130^^	n= 10 (58.8%)	n= 7 (36.8%)	0.187^^	n= 16 (72.7%)	n= 16 (80%)	0.580^^	n= 39 (65%)	n= 36 (50.7%)	0.099^^
IV iron, n (%)	n= 8 (38.1%)	n= 18 (56.3%)	0.196^^	n= 7 (41.2%)	n= 15 (78.9%)	0.020^^	n= 11 (50%)	n= 12 (60%)	0.516^^	n= 26 (43.3%)	n= 45 (63.4%)	0.022^^
Laxatives, n (%)	n= 11 (52.4%)	n= 6 (18.8%)	0.010^^	n= 5 (29.4%)	n= 2 (10.5%)	0.153^^	n= 9 (40.9%)	n= 6 (30%)	0.461^^	n= 25 (41.7%)	n= 14 (19.7%)	0.006^^
Opioids, n (%)	n= 5 (23.8%)	n= 3 (9.4%)	0.151^^	n= 2 (11.8%)	n= 1 (5.3%)	0.481^^	n= 5 (22.7%)	n= 3 (15%)	0.524^^	n= 12 (20%)	n= 7 (9.9%)	0.101^^
Potassium binders, n (%)	n= 6 (28.6%)	n= 6 (18.8%)	0.403^^	n= 3 (17.7%)	n= 4 (21.1%)	0.797^^	n= 18 (81.8%)	n= 16 (80%)	0.881^^	n= 27 (45%)	n= 26 (36.7%)	0.330^^
Subjective constipation, n (%)	n=15 (71.4%)	n=10 (31.3%)	0.004^^	n=11 (64.7%)	n=1 (5.3%)	0.001^^	n=17 (77.3%)	n=9 (54%)	0.031^^	n=43(71.7%)	n=20 (28.2%)	0.001^

Source: own elaboration. *Mean±standard deviation. ^^Student's t-test. ^Chi-square test. **n:** sample size.
HLRP: *Hospital Universitario de La Princesa*; **HULP:** *Hospital Universitario La Paz*; **HUGU:** *Hospital Universitario de Guadalajara.*

pharmacological treatment, 20% (n=12) were taking opioids, 65% (n=39) phosphate binders, 45% (n=27) potassium binders, 41.7% (n=25) had prescribed laxatives, and 43.3% (n=26) received intradialytic intravenous iron.

When comparing patients with FC and those without FC, statistically significant differences ($p < 0.05$) were found for the following variables: hypertension (p=0.043), diabetes mellitus (p=0.009), prescribed laxative use (p=0.006), and intravenous iron administration (p=0.022) (see **table 1**).

With regard to subjective constipation, a total of 63 patients reported constipation symptoms. Of these, 71.6% (n=43) belonged to the FC group versus 28.2% (n=20) in the non-FC group. By hospital, at HLPR, 71.4% (n=15) of FC patients reported subjective constipation versus 31.3% (n=10) of non-FC patients; at HULP, 64.7% (n=11) versus 5.3% (n=1); and at HUGU, 77.3% (n=17) versus 54% (n=9). The proportion of patients with subjective constipation was significantly higher in the FC group than in the non-FC group in the total sample (p=0.001) and in each hospital: HLPR (p=0.004), HULP (p=0.001), and HUGU (p=0.031).

Regarding QoL, assessed using the CVE-20 questionnaire, patients with FC showed lower scores (58.55 ± 16.25 points) compared with those without FC (64.63 ± 14.56 points), with statistically significant differences in the overall score (p=0.026), general physical dimension (p=0.002), and rectal physical dimension (p=0.004). When analysed separately by hospital, different patterns emerged: HLPR showed significant differences in the general physical dimension (p=0.001) and overall score (p=0.040); HULP in the emotional (p=0.024), general physical (p=0.009), rectal physical (p=0.001) dimensions and overall score (p=0.003); whereas HUGU showed no statistically significant differences in any dimension **(table 2)**.

DISCUSSION

The present study sought to highlight that constipation is a highly prevalent problem among individuals receiving renal replacement therapy (RRT), particularly those undergoing haemodialysis (HD), and that it exerts a negative impact on their quality of life (QoL).

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Tabla 2. Comparison of CVE-20 scores according to the presence or absence of objective constipation based on Rome IV Criteria (2016).

SCORE	HLPR n=53 (40,45%)			HULP n=36 (27,48%)			HUGU n=42 (32,06%)			TOTAL n=131 (100%)		
	Constipated n=21	Not Constipated n=32	P	Constipated n=17	Not Constipated n=19	P	Constipated n=22	Not Constipated n=20	P	Constipated n=60	Not Constipated n=71	P
EMOTIONAL DIMENSION*	17.62±5.13	17.931±5.24	0.828^	16.53±7.07	20.95±3.81	0.024^	19.27±3.91	17.05±6.85	0.199^	17.92±5.40	18.49±5.57	0.551^
PHYSICAL-GENERAL DIMENSION*	19.10±4.60	24±4.51	0.001^	20.52±7.14	25.47±2.87	0.009^	23.41±5.89	22.25±5.46	0.481^	21.08±5.81	23.90±4.55	0.002^
PHYSICAL-RECTAL DIMENSION*	10.48±5.22	12.81±4.13	0.076^	10.71±3.93	15.05±1.51	0.001^	12.09±4.70	12.35±3.88	0.847^	11.13±4.67	13.28±3.67	0.004^
SOCIAL DIMENSION*	7.43±3.82	9.03±3.08	0.098^	7.82±3.59	9.58±3.40	0.142^	9.81±3.14	8.75±3.70	0.318^	8.42±3.62	9.10±3.31	0.263^
GLOBAL SCORE*	54.62±15.67	63.47±14.48	0.040^	55.59±18.67	71.05±8.51	0.003^	64.59±13.48	60.40±17.60	0.389^	58.55±16.25	64.63±14.56	0.026^

Source: own elaboration. *Mean ± standard deviation. ^^Student's t-test. ^Chi-square test. ; **n**: sample size.
HLPR: Hospital Universitario La Princesa; **HULP:** Hospital Universitario La Paz; **HUGU:** Hospital Universitario de Guadalajara.

Recent studies have described a high prevalence of constipation in HD patients[9,12,16,18,19]. A cross-sectional study conducted by Zhang et al. estimated the prevalence of functional constipation (FC) at 72%[9], while a prospective study by Sharma et al. reported a similar prevalence (65.6%)[19]. Other studies have evaluated both FC and subjective constipation: a cross-sectional study by Lee et al. found an FC prevalence of 12.3% versus 46.3% for subjective constipation[12], the Spanish multicentre study by Perona et al. reported prevalences of 46% and 60%, respectively[18]; and a single-centre study conducted in 2023 at HLPR determined prevalences of 42% FC and 44.7% subjective constipation[16]. In our series, the prevalence of FC reached 45.8%, while subjective constipation affected 71.7% of participants (p=0.001), consistent with most previously reported findings. These data suggest that individuals receiving HD experience a higher prevalence of FC compared with the general population, as well as a greater proportion of subjective constipation.

Several studies have identified factors associated with constipation in HD patients[4,7,8,16,19,20]. With regard to sex, although existing literature indicates that FC is more common in women[16]. in our study it was more prevalent among men (65%). This discrepancy may be explained by the higher prevalence of CKD in the male population[21]. Concerning pharmacological treatment, we found a positive association with the use of laxatives (p=0.006) and intravenous iron administration (p=0.022). In this respect, it is noteworthy that although opioid use has been associated with a higher likelihood of constipation[4,19], our findings do not support this association. Most authors agree that further studies are required to clarify the influence of specific factors on the development of constipation[4,19], making this an important area for future research.

Regarding QoL, the subgroup of patients with FC exhibited lower scores, particularly affecting the physical-general and physical-rectal dimensions. These results differ from the previous HLPR study, in which all QoL dimensions were affected[16]. This discrepancy may be related to the complexity of defining QoL, which depends on individual perception, value systems, and personal and emotional resources[18,22]. Moreover, although the CVE-20 questionnaire is specifically designed to assess constipation-related QoL, it is not adapted for patients with CKD, and some participants experienced difficulty completing it, requiring nursing assistance. This should be considered in future research. Importantly, the HUGU did not demonstrate statistically significant differences in any dimension or in the global QoL score. Since 2023, this hospital has implemented the Best Practice Guideline (BPG) *A proactive approach to bladder and bowel management in adults* from the Registered Nurses' Association of Ontario (RNAO), through the Best Practice Spotlight Organization (BPSO®) project[23], which may explain the observed differences in QoL outcomes.

Of note, the importance of implementing individualised, evidence-based interventions to reduce constipation in this population[9]. This BPG provides specific hygiene-dietary strategies as first-line treatment, including increasing physical activity, adopting a high-fibre diet, and ensuring adequate fluid intake[23]. However, in HD patients, renal-related fluid and dietary restrictions must be carefully considered. Therefore, HUGU adapted these recommendations to renal patients' needs, specifically advising the consumption of fruits high in fibre but low in potassium (raspberries, pears, apples)[24], along with appropriate cooking techniques to reduce potassium and phosphorus content in vegetables and legumes[24,25]. Additionally, strict fluid intake limitations were reinforced according to residual diuresis (500–750 ml + urine output)[26]. These recommendations are detailed in an educational leaflet **(figure 4)**.

Figure 4. Leaflet with renal patient–adapted recommendations, *Hospital Universitario de Guadalajara* (Spain).

Regarding study limitations, the non-probabilistic sampling method may have introduced selection bias. Furthermore, the subjective constipation questionnaire was developed ad hoc, potentially limiting external validity. Variability in constipation perception—due to cultural, educational and cognitive differences—may have influenced the results, affecting response comparability and the validity of conclusions regarding QoL impact.

To facilitate translation of research findings into clinical practice, we propose that HULP and HLPR implement this BPG either independently, through participation in the BPSO® project, or via the Sumamos Excelencia® Programme. Following patient assessment, individuals diagnosed with FC would receive personalised, renal-adapted recommendations, with annual follow-up to evaluate effectiveness and impact on QoL.

In conclusion, this study demonstrates a high prevalence of both objective and subjective constipation in HD patients and its significant negative impact on QoL. Furthermore, it highlights that implementing a Best Practice Guideline for constipation management can improve patients' perception of the quality of care received.

Conflicts of interest

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